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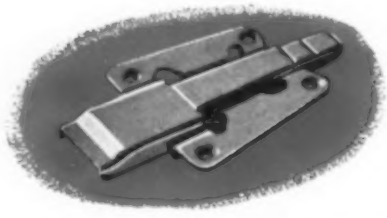
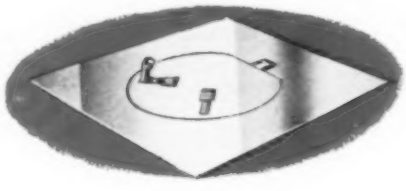
PRESS AND THE INSPECTION DOOR FLIES OPEN!

The new Hartwell door latch ends the tedious removal and replacement of inspection doors. Saves as much as 30 minutes on the inspection of a single plane. That means ships in action faster. Press the trigger of the Hartwell latch and the inspection door flies open! Press the bolt and it is locked shut! It is that easy and that fast! And it is economical!



NEW HARTWELL DOOR LATCH. This new inspection time-saver can be installed in a standard Army Air Forces cutout shown on print 43G2853. It is light—weighs less than ⅓ oz. *Patent applied for.*



FITS FLUSH. The Hartwell door latch fits flush with the inspection door. Where necessary two or more latches can be installed on a single door. For complete engineering details write or wire our Los Angeles office.

MADE TO STAND UP. The latch is simple and rugged in construction. It consists of: 1) trigger, 2) bolt – both made of light gauge steel; 3) aluminum bracket; 4) twin springs. (Two are used for safety.) It rivets to the inspection door.

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As an engine manufacturer, our contribution is operating economy. The aircraft designer can rely on Wright engines to operate on less fuel and cost less for maintenance. And because they weigh less than comparable powerplants, they provide a profitable payload bonus.

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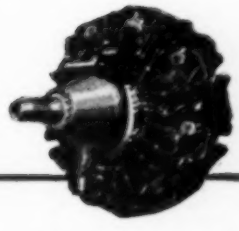

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LOWER FUEL CONSUMPTION
REDUCED MAINTENANCE

WRIGHT

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Eleventh Year of Publication
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APRIL, 1944 VOL. XXI, NO. 4

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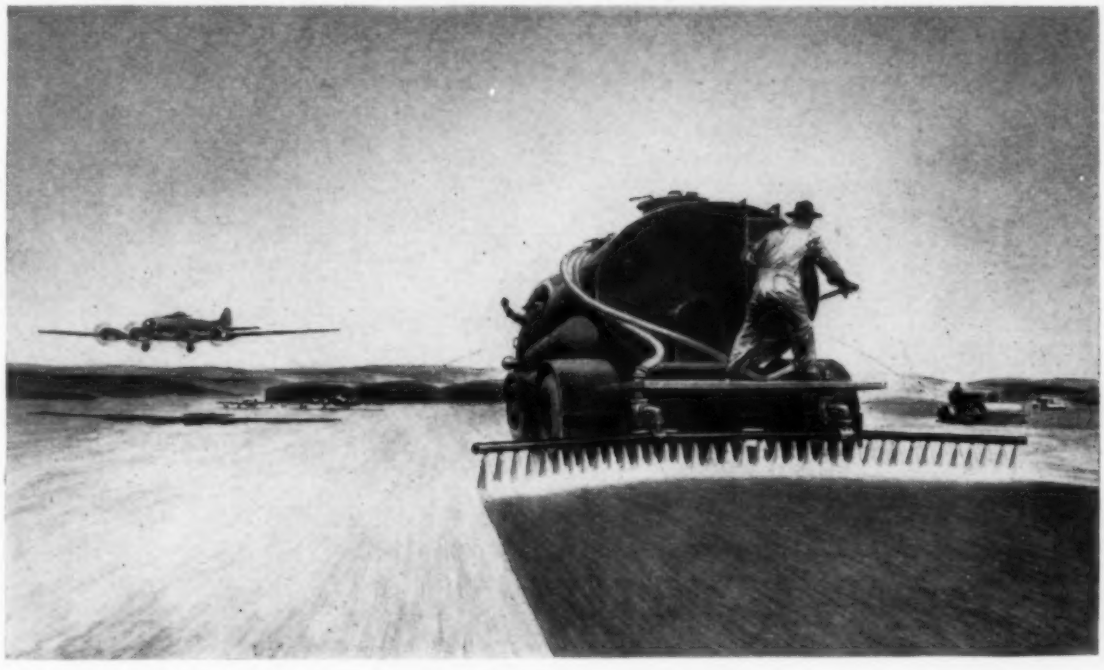

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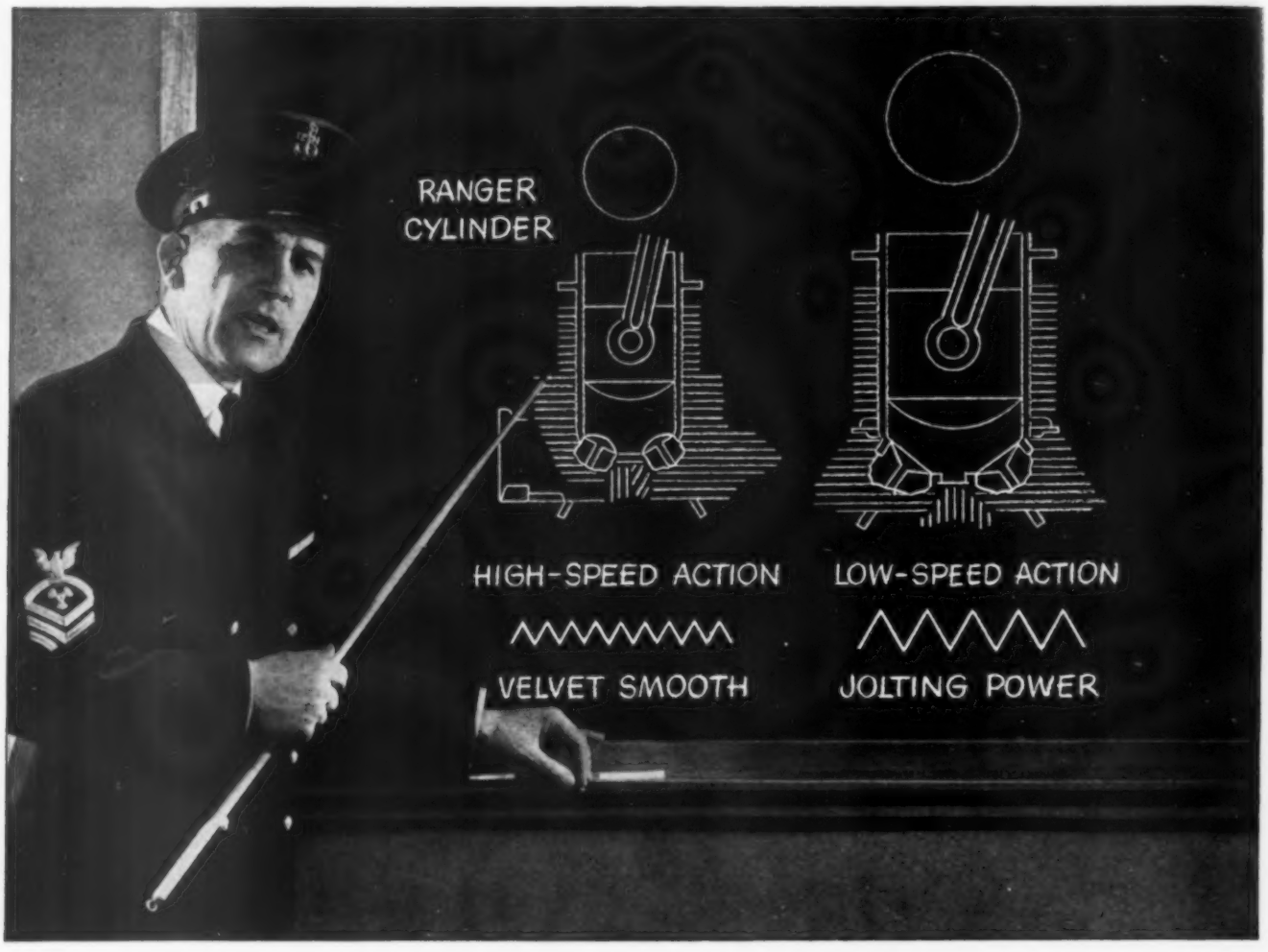

High Speed Means Smooth Power

Fairchild engineers have created a truly high-speed aircraft engine in the Ranger twelve (SGV-770-C-2).

Ranger cylinders deliver more power for their size and weight than do the cylinders of other engines in Ranger's power class.

Each piston delivers more than 1,500 power strokes a minute at take-off—a total for the twelve cylinders of over 18,000 impelling drives every sixty seconds.

They all add up to the kick of 550 horses delivered to the reduction gears that spin the propeller. The explosions in a Ranger produce power that's *velvet-smooth*—like this: ; instead of jolting—like this:

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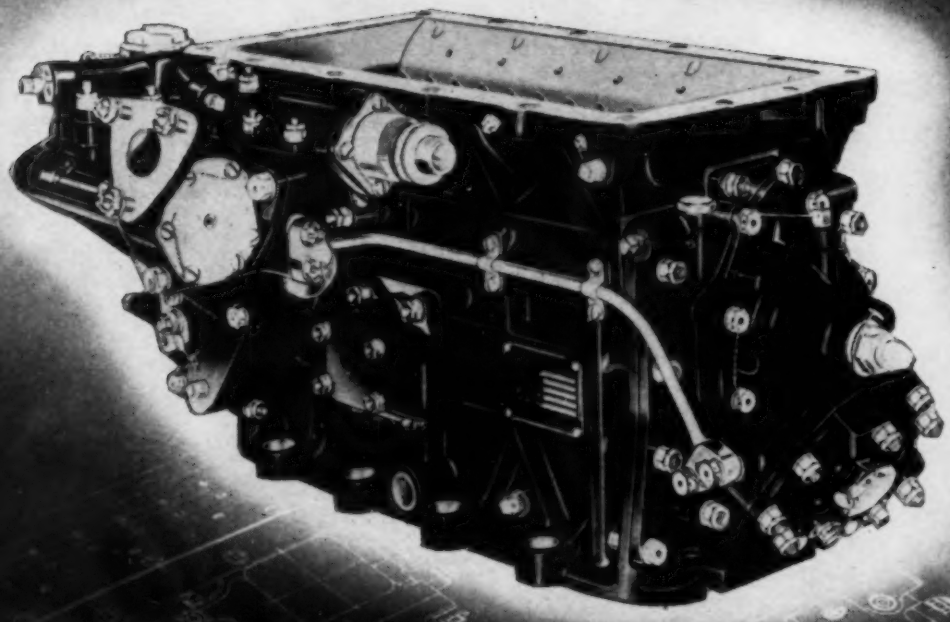

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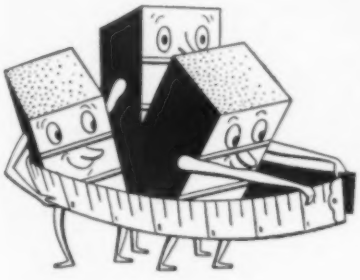
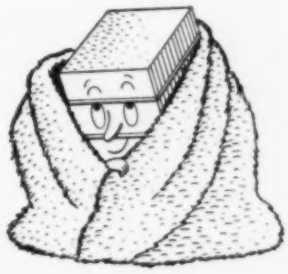
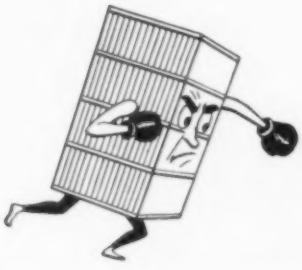
LESS WEIGHT: In 1940, AiResearch designed and produced the first successful all-aluminum intercooler. This design cut weight from 92 lbs. to 32 lbs. per intercooler on Boeing's Flying Fortress . . . made equal savings for other aircraft.



LESS SPACE: AiResearch pioneered the development and use of flattened tubes. These provide compactness . . . greater adaptability to aircraft design. More heat dissipation surface within a given space.



ICE PREVENTION: AiResearch Automatic Exit Flap Controls are now available for intercooler air ducts. This system cuts open-flap time . . . reduces cooling drag considerably . . . and protects against carburetor-icing!

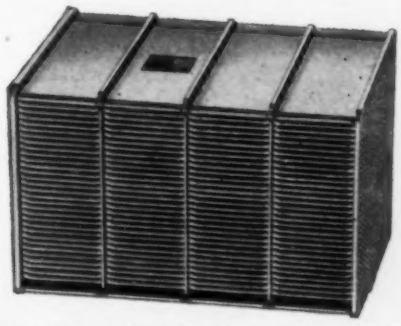


MORE RUGGED: AiResearch was first to use complete mechanical assembly. Made entirely of heat-treated, corrosion-resisting aluminum alloys, these intercoolers have proven their ability to stand up against terrific engine backfire. Such construction provides greater freedom from maintenance trouble . . . makes it easier and quicker to repair combat damage in the field.

Result: AN ALTITUDE-RAISING INTERCOOLER

Engine performance in the high altitudes depends on the intercooler as well as the supercharger. By reducing the temperature of supercharged air, the intercooler increases the density of carburetor air intake . . . helps avoid detonation.

By doing this job more efficiently, AiResearch Intercoolers today are helping the power plants of thousands of American warplanes deliver *added useable power at critical altitudes.*



THE ANSWERS to air, pressure and temperature control problems—answers developed by AiResearch engineers for today's aircraft may be of help to you. Your inquiries are invited.

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JUST AMONG OURSELVES

Editorials and Comment

DIVIDED WE STAND

WHAT would happen tomorrow if a Washington directive cut off all aviation gasoline for miscellaneous non-scheduled flying activities? Flying schools, charter operators, overhaul and maintenance shops, and airports all over the country would close their doors, many of them to remain closed forever. Civil aviation, no matter how important in the nation's overburdened transportation system, no matter how great its record as the backlog of our nation's defense, its vital contribution to the expansion of our Army and Navy air forces, no matter its potential in the war effort from now on out, would be forced to hang out the sign: "Closed for the Duration."

What could we do about it? Many of us would start appealing to the various organizations that represent the phase of non-scheduled aviation we are directly interested in. Some of us would appeal to Congress. Most of us would sit around and howl, appealing to no one, because of the futility of it all. The trouble is, non-scheduled flying is over-organized yet not organized at all.

When figured on a population basis, aviation has more organizations within itself than any other one industry. It has more organized groups than Carter has pills, more clubs, associations, societies and committees than California has crack-pots. The War, instead of slowing up the formation of new aviation organizations, has stimulated the trend with no ceiling in sight. The net result of all this is a host of organizations acting independently of each other and in many instances actually fighting among themselves, leaving the gate wide open for non-aviation interests to do what they please when they please in dictating the destiny of the airplane.

Particularly is this true of non-scheduled civil aviation Just to mention a few we have the ADMA, the NATA, the AOPA, the Personal Plane Committee of the Aero Chamber, the PFA, the SPA and finally, the presumably all-inclusive NAA. These organizations are fundamentally tied together in a common purpose, namely, the promotion and protection of non-scheduled civil aviation in the United States. But acting independently and separately, with no cohesion and very little mutual co-operation on major problems, these organizations fail to provide the solid front so necessary for the welfare of any phase of American endeavor under our system of government.

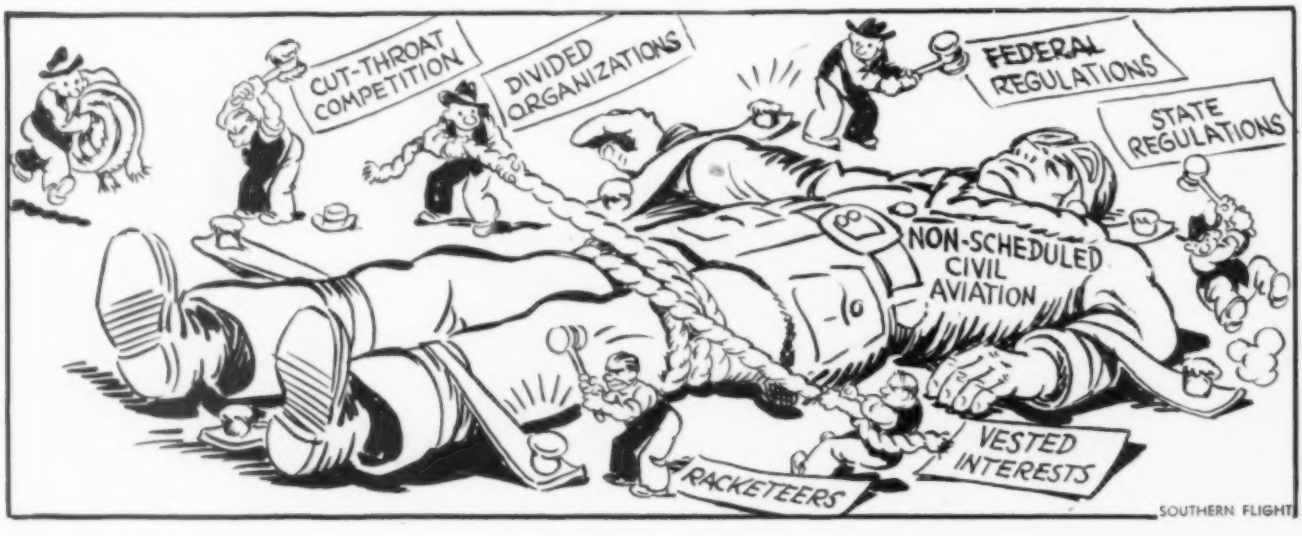
We have witnessed the strength of a solid front as exhibited by the Air Transport Association, trade group of the airlines. We have seen miracles of production through the solid front operations of our manufacturers. The task still remains to be accomplished for non-scheduled civil aviation. There is some hope that the job of unification will be done this year. This hope springs from a grass-roots move all over the country to band together into one powerful association which will intelligently and adequately look after the specific interests of non-scheduled civil aviation.

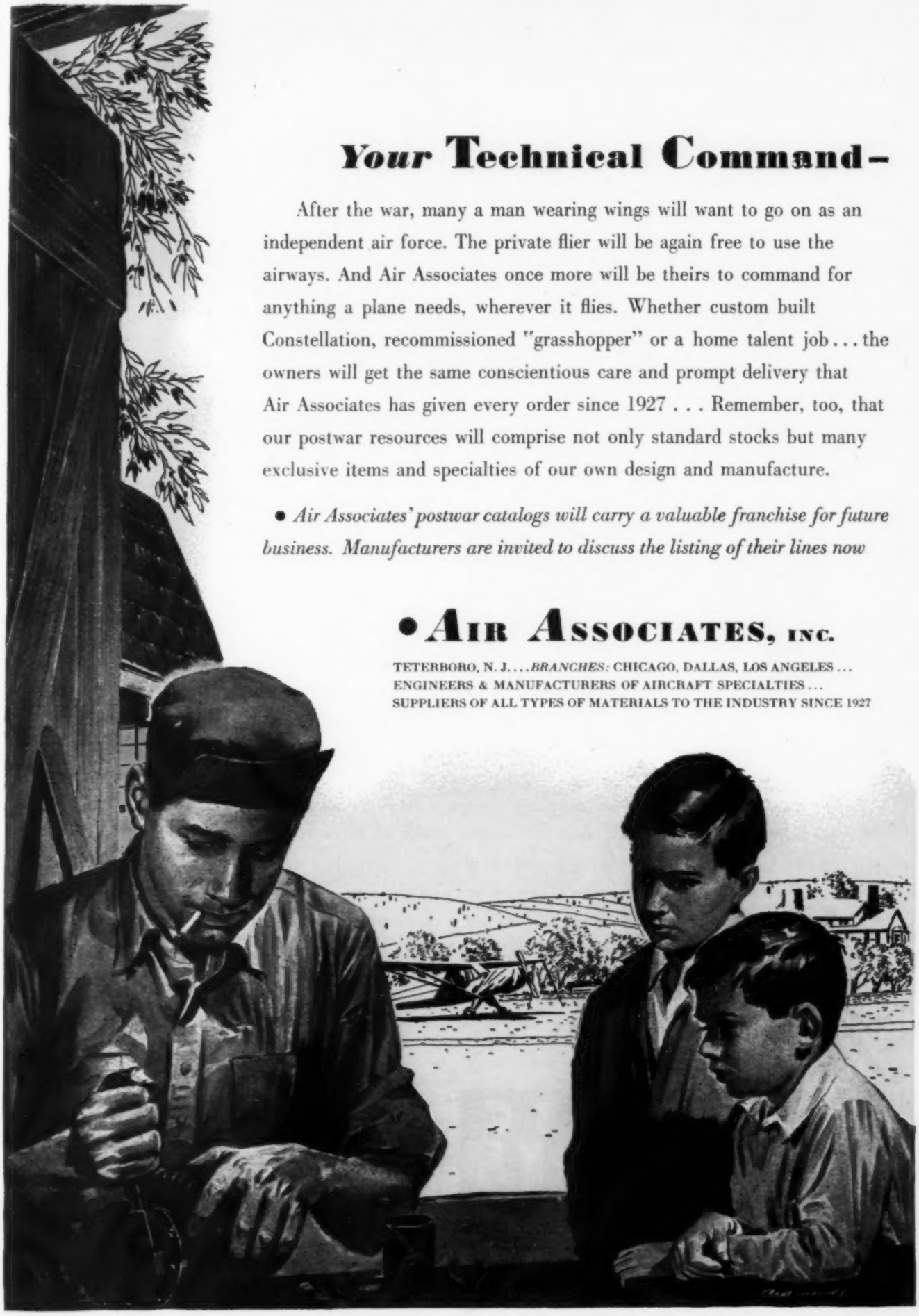
Indicative of this growing trend was a recent meeting in Texas of officials representing large fixed-base establishments engaged in major repair and overhaul operations. All participants agreed to the necessity of backing to the limit a national trade association that would be truly representative of their interests as well as the interests of other departments within the companies they represent.

How many times have you heard the same desire expressed by your friends vitally interested in non-scheduled civil aviation? We heard it last year at Oklahoma City's aviation clinic and more widely at the NATA St. Louis convention.

Could not the dealers, the distributors, even the manufacturers and the owners, become a part of this proposed "solid front" association for non-scheduled civil aviation? Is there a possibility for all of the organizations to pool their present membership into one powerful group truly representative of non-scheduled aviation? If there is the faintest ray of hope for this accomplishment, it should be pursued to the utmost and the attempt made immediately at this time of trying and difficult transition, when the very existence of non-scheduled aviation is at stake.

(Continued on page 50)





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France . . . Croix de Guerre (Palms and Star)
Russia . . . Order of Lenin, Order of Red Banner, Hero of Soviet Union, Order of Guards, Medal of Valor, Order of Red Star, Order of Georgian Republic.
China . . . Starred Wing, Cloud Banner (5th Order), Cloud Banner (6th Order).
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In the battle-raked heavens throughout the world, these pilots have won undying glory, symbolized by distinguished military decorations. Honor the pilots! Salute the scrappy Curtiss P-40 fighters which carried them to success. Together, against overwhelming odds, they fought to finally wrest air supremacy for America and its Allies.

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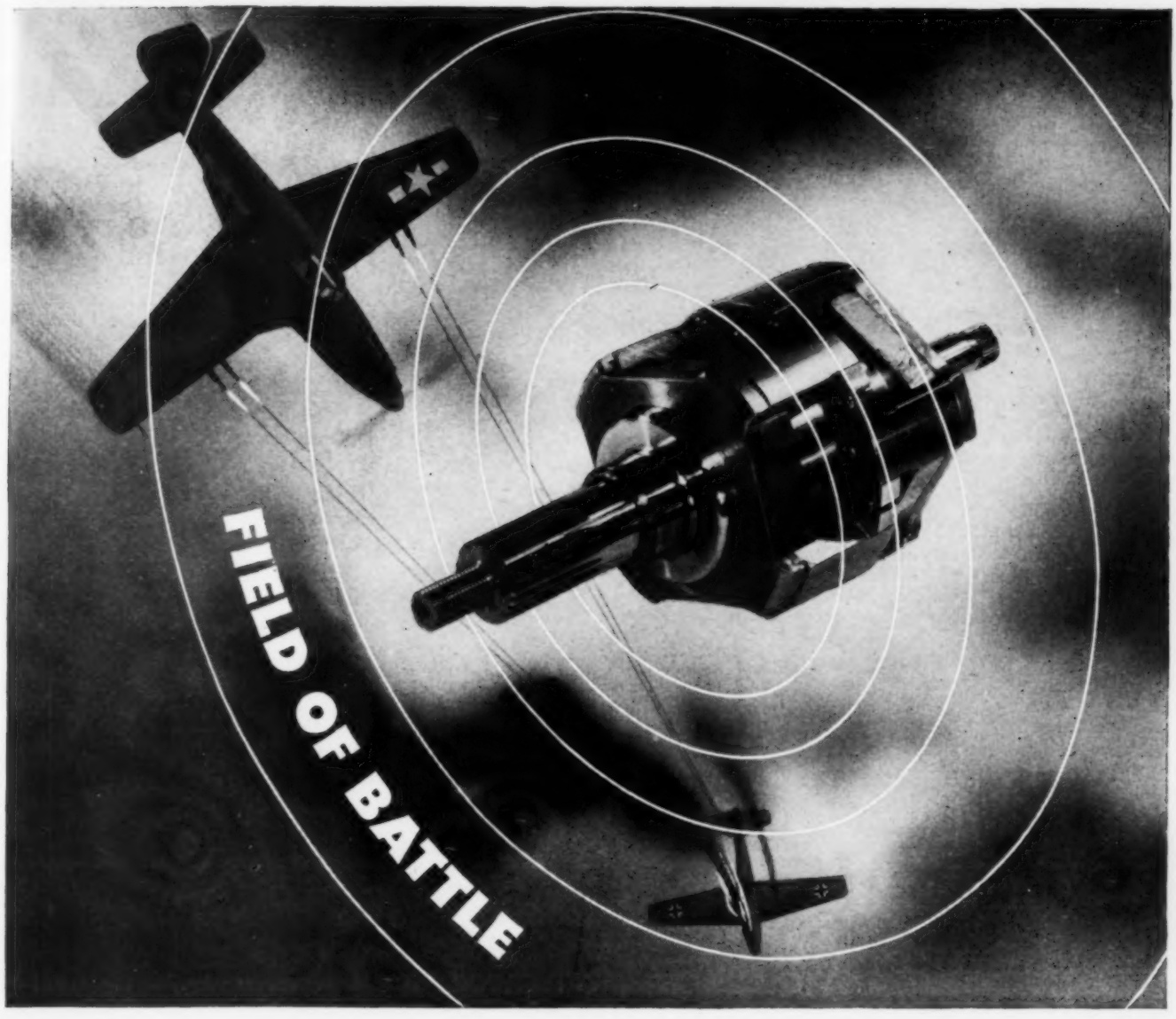

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Revving Up

RECOGNITION: The eighty-four airmen in the Lockheed pilot house, who average over 3,500 flights monthly to prove America's aircraft are safe for combat pilots, are now directed by Milo G. Burcham, who was promoted last month to chief pilot in charge of flight operations for Lockheed Aircraft Corporation. One of the world's ranking test pilots, and pioneer in high altitude research, he conducted much of the development work on the P-38 and the 4-engined C-69 Constellation.

★ ★ ★

GETTING IN THE SCRAP: Uncle Sam is building the best airplanes in the world at the rate of 100,000 per year. Everybody knows that. Everybody, that is, except a friend of ours who instructs at a civilian school on a Texas prairie. "As far as we know they quit makin' new planes many years ago," he says. "Or at least that's the idea you get after seein' the things we fly around here." The boys at his place got together and recommended the following amendment to the school's rules: "All instructors will please land as near as possible to **other** disabled planes on the field, as planes scattered haphazardly over the field look beastly untidy. This will also bring about a closer relationship among the instructors and prove to the individual that his equipment is no better than yours. . . . All instructors will please acquaint themselves with the proper hand signals, to be used when backing out of the traffic pattern on breezy afternoons. . . . While running line checks, students must stand clear of wings and parts of plane suspended above ground, either by struts, braces (2 x 4's), wires, clotheslines or turbulent air, as they are not covered by insurance for injuries received on the ground." But our friend still has hopes of a brave, new world. "One more WTS program," he says, "and we'll all be on relief."

★ ★ ★

LOOKING AFTER THE BOYS: **"Before permitting personnel of his command to perform a photographic mission, Major McCarthy flew over the area to observe any unusual conditions and to obtain proper accommodations and cooperation at their destination," the citation stated. "His practice of requiring his officers and men to do nothing he had not accomplished himself gained the respect and whole-hearted co-operation of his entire command. Evidence of this is reflected in the fact that his aircraft have been maintained 98 per cent operational since arrival in this theatre and his command has successfully photographed over 700,000 square miles of territory without loss or damage to a single aircraft." That's why the Air Medal was awarded recently to Major Patrick B. McCarthy, well-known former Delta Air Lines pilot and Lockheed test pilot, who commands an AAF photographic mapping squadron "somewhere" in the China-India-Burma theatre . . . He stopped off in Dallas last month on a special mission to Washington. His squadron won fifty-eight citations in a four-month period, flying B-24 and B-25 photo ships. About the only Japs he saw in Asia were those who caught him on the ground after landing a C-47 at a certain Chinese base. He dived into a slit trench, but the C-47 was blown to pieces by a direct hit. "Sure hated to see that airplane bombed," commented our lanky friend, dryly. "It was loaned to me by General Chennault."**

★ ★ ★

INTRODUCTIONS: Maurice Roddy, whose piece on the contribution of the National Air Races to the war appears on page twenty-five, can rattle off facts, figures and names about racing and stunting by the hour and is a welcomed friend wherever he turns up to do a story for the Chicago **Times**. . . . Some down-to-earth observations on the past, present and future of the Civil Air Patrol are presented on page twenty-eight, and we hope they'll receive the attention they deserve—if for no other reason than to provoke discussion. Devon Francis, the author, was formerly aviation editor of the AP and **Time**. . . . There will be all kinds of airports come peace. Charley Planck, the well-known authority on private flying, says the farmers will be going into the business. His ideas, presented on page thirty, sound good to us. . . . Interesting comment on the Navy's air campaign appears on page forty-four in a neat little package prepared by Courtenay Moore, who covers the Navy Department as a UP scribe.

★ ★ ★

THIS MONTH'S FREE DEALS: **If you're interested in contributing your bit towards improving the postwar airplane, Bellanca has started an aircraft quiz that can prove mighty helpful. Get yours by writing Bellanca Aircraft Corp., Dept. S-8, New Castle, Delaware.**

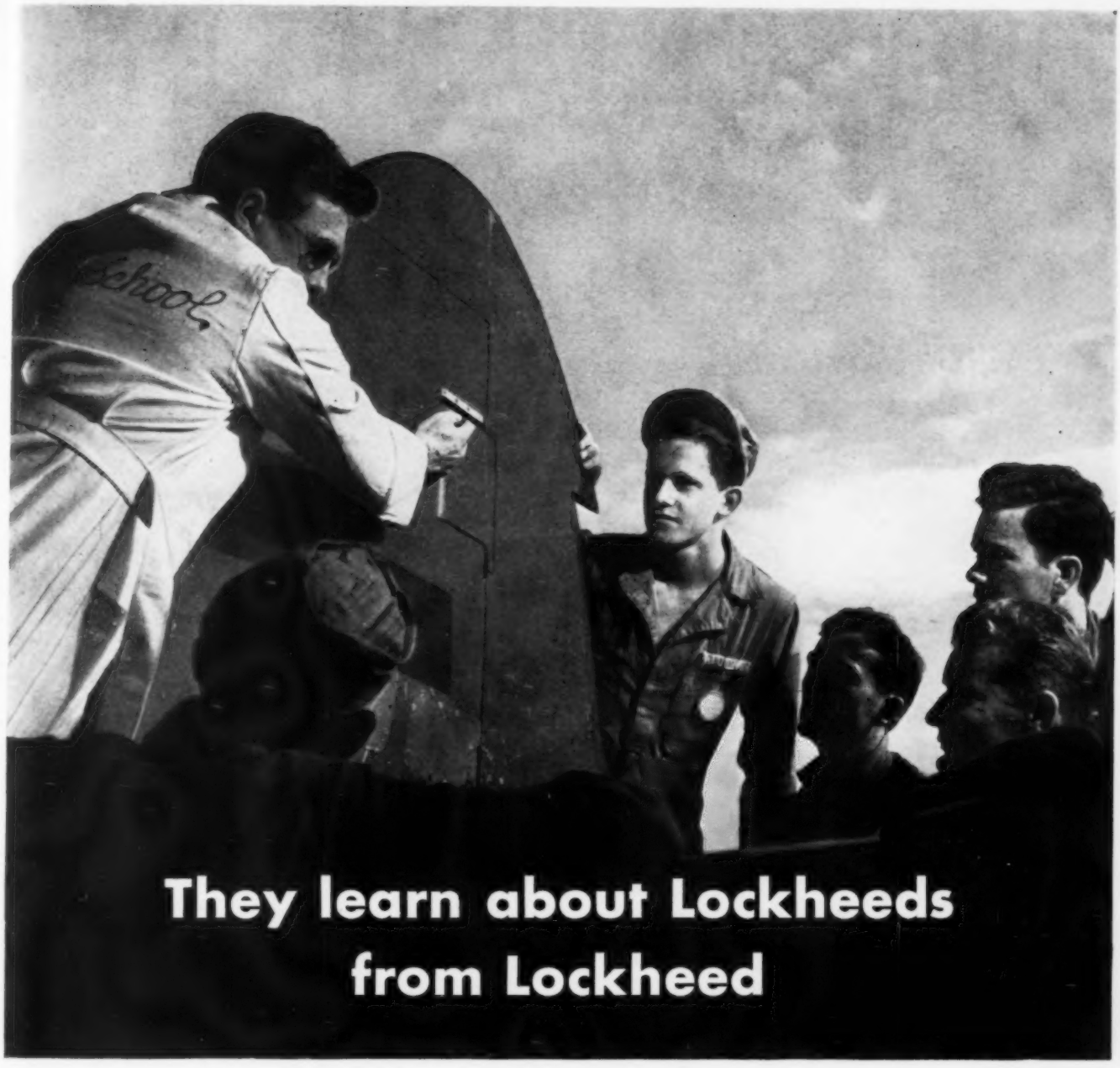
Hap Discards 36,000 Cadets . . . And Looks for More Wasps

A curious twist in Uncle Sam's pilot predicament developed last month when General H. H. Arnold, the Army Air Forces commanding general, transferred 36,000 aviation cadets to the walking army, but asked for more—"many more"—Women Airforce Service Pilots, for whom he sought military status.

To complaints that he is using women pilots while qualified male pilots are ignored and go without jobs, General Arnold promised a "chance to fly" to every man who could qualify "according to our standards." Discard of 36,000 aviation cadets was assertedly effected because of the "severe shortage" of men in the ground forces, which were said to be 200,000 short. He also stated the AAF is reaching its peak, and is cutting down its training (CAA schools and contract schools are being closed). The AAF also announced temporary suspension of reserve enlistments of seventeen-year-olds, it being felt inadvisable to hold a reserve beyond immediate needs. However, direct enlistment applications from seventeen-year-olds will still be accepted, and training will not be stopped.

Meanwhile, AAF Training Command headquarters at Fort Worth added nine weeks to fighter pilot and five weeks to bomber pilot training, and each of the periods for pre-flight, primary, basic and advanced pilot training has been extended from nine to ten weeks, while a new five-week transition course was established for fighter pilots.

The General praised the WASPs to the House Military Affairs Committee, which approved the Costello Bill to bring the girls into the Air Force on military status (Jacqueline Cochran would be a lieutenant colonel, for example). He said plans call for more extensive use of WASPs in ferrying and other kinds of flying, and tests are under way to determine if they can replace men who are instructing. This means enlargement of the WASP training center at Sweetwater, Texas, and also the opening of more such training centers for them. There are now 534 women doing WASP work, he said.



They learn about Lockheeds from Lockheed

They are U. S. Army and Navy ground crews, the best-trained aircraft mechanics in any man's air corps.

After three to six months in Army or Navy schools, these men come to Lockheed for intensive one-month postgraduate courses. At our schools – which we operate under Army-Navy supervision at our plants, with company experts as instructors – they learn special tricks for keeping Lockheeds in top flying and fighting shape.

Army mechanics study the P-38 Lightning fighter; Navy men, the PV-1 Ventura bomber. They study every part – from tip to tail – separately. Diagrams and mock-ups, cutaway engines, complete wiring and radio installations serve as their textbooks.

Today, on every fighting front, Lockheed warplanes are kept in top flying and fighting shape by skilled Lockheed-trained military ground crews. *Tomorrow,* at war's end, civilian Lockheeds–private planes and airliners alike–will be kept at their flying best, too. There will be Lockheed-trained experts to keep your plane in top flying trim wherever you may fly it.

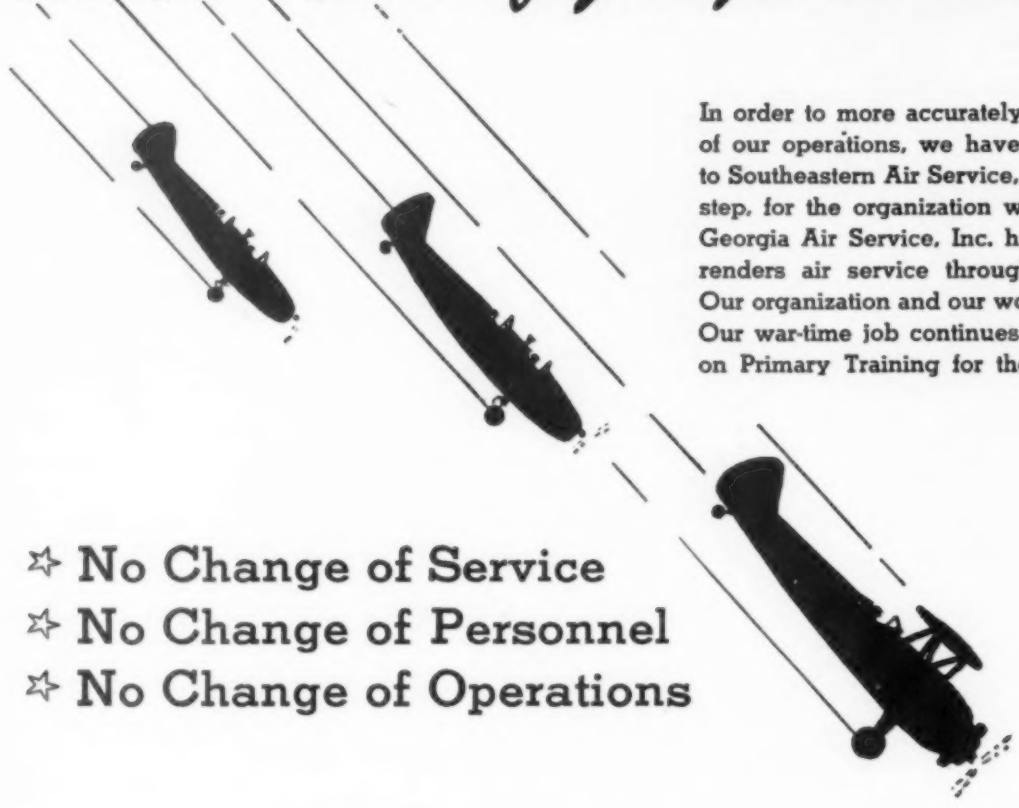
For tomorrow, as today, Lockheed will not only build planes, but get them ready to fly, and keep them ready to fly.

LOOK TO *Lockheed* FOR LEADERSHIP

LOCKHEED AIRCRAFT CORPORATION, BURBANK, CALIFORNIA

"SOUTHEASTERN"

the New Name of Georgia Air Service, Inc.



In order to more accurately describe the scope of our operations, we have changed our name to Southeastern Air Service, Inc. This is a logical step, for the organization which was known as Georgia Air Service, Inc. has "grown up," and renders air service throughout the Southeast. Our organization and our work remain the same. Our war-time job continues to be concentration on Primary Training for the Army Air Forces.

- ☆ No Change of Service
- ☆ No Change of Personnel
- ☆ No Change of Operations

POST WAR PLANS are important, too! The hundreds of pilots, mechanics and aircraft technicians among our skilled personnel constitute a smooth-working machine which can render invaluable service to aviation in the Southeast. Our vast backlog of experience in war flying will be available to both commercial and private flyers. Through our affiliated company, Southeastern Air *Express*, Inc., we plan a system of feeder air lines. Southeastern Air *Service*, Inc., is the name which will designate the fixed base operations. We invite continued contacts from manufacturers and others in aviation who are interested in post war sales, service and maintenance "all over Dixie."

SOUTHEASTERN AIR SERVICE

SOUTHEASTERN AIR SERVICE, INC.

Formerly GEORGIA AIR SERVICE, INC.

Flight Contractors to U. S. Army Air Forces — Bennettsville, S. C. and Jackson, Tenn.

EXECUTIVE OFFICES — ATLANTA, GEORGIA

Star of Hope for American Mothers

To an American Mother: You've hitched your heart to a star, the white star that marks your son's ship—one in the sky-filling constellation of American Air Force stars that is speeding our Victory, making the job of *all* our fighting men easier, safer. You have loaned your son to fight for his country, his God. You sent him tearfully, perhaps . . . but your eyes were shining, your head was high. To you we say: Your son has been given superb training; he flies the finest, safest, most efficient airplanes that American engineering genius can produce. We know—for it is with an intense pride of craftsmanship, a deep sense of our responsibility, that we place the symbolic white star of hope on the planes we are building for Mothers' sons everywhere.

North American P-51 Mustang
BULLET-PROOF ARMOR
FULL-VISION COCKPIT ENCLOSURE
1520 H. P. SUPERCHARGED ENGINE
REVOLUTIONARY SUPER-SPEED WING
500 LB. BOMB UNDER EACH WING
THREE 50-CAL. MACHINE GUNS IN EACH WING
SELF-SEALING GAS TANKS

THE MUSTANG IS A FIGHTER FROM THE GROUND UP! Speed: over 425 m.p.h. Ceiling: 40,000 feet Radius of action: over 500 miles

North American Aviation *Sets the Pace*

WE MAKE PLANES THAT MAKE HEADLINES... *the B-25 Mitchell bomber, AT-6 Texan combat trainer, P-51 Mustang fighter (A-36 fighter-bomber), and the B-24 Liberator bomber. North American Aviation, Inc. Member, Aircraft War Production Council, Inc.*

Finish the Fight with War Bonds

"How can they come back?"

"It was a miracle the ship didn't break in two up there," said an Army Air Force Sergeant, holder of the Congressional Medal of Honor for his part in bringing home a badly crippled Boeing Flying Fortress. "I'd like to shake hands personally with the people who built it."

MANY Fortress crews echo that sentiment. They have seen planes limp in with three out of four engines dead, wings and tails riddled like saltcellars, or with shell holes as large as wash tubs. *How can they do it?*

1. Fortress wings are built with substantial, truss-type spars, covered with a double skin of tough metal. This tends to keep gunfire damage local, rather than basically affecting wing strength.

2. Boeing engineers have always insisted on alternate methods of control. And even if battle damage prevents use of all other control methods, the automatic pilot can be used for near-normal maneuverability.

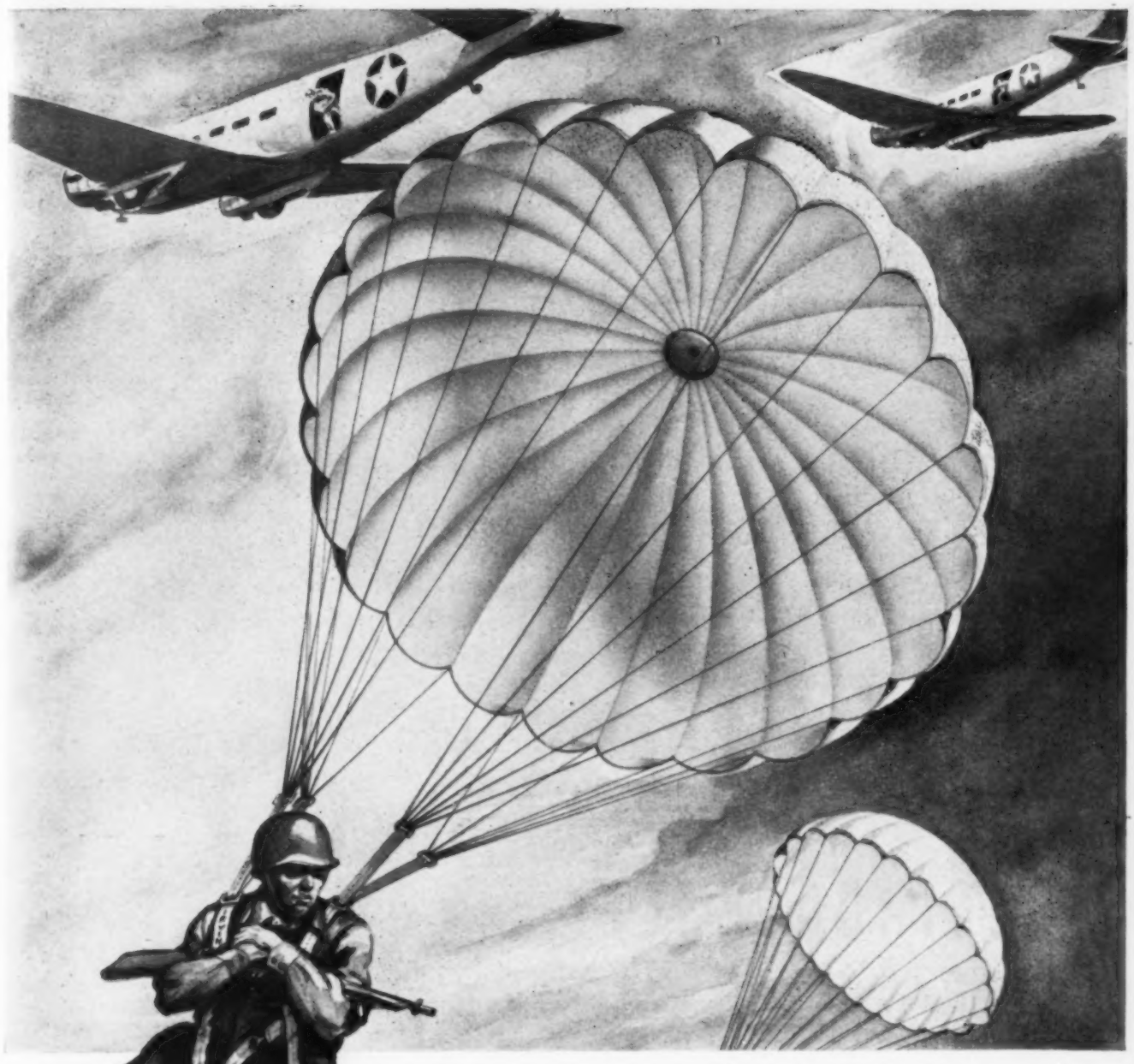
3. Virtually all mechanisms are electrically operated. Damage to one circuit will not affect others, and dispersal of these circuits reduces vulnerability.

4. The "dorsal fin," as developed by Boeing, gives the Flying Fortress inherent stability. With the vertical or horizontal tail surfaces partially destroyed in battle, or with one or more engines shot away, a Fortress can still be flown successfully because of its tail design.

5. But one of the most important reasons why the Forts fight off enemy opposition, hit their targets and "come back", is the confidence, based on the record, which causes many a Fortress crew to stay with the ship long past normal bail-out time, knowing that somehow it WILL bring them safely home.

Boeing integrity in research, design, engineering and manufacturing will again be a part of peacetime products when the war is won. When that day comes, you can be assured . . . if it's "Built by Boeing" it's bound to be good.

DESIGNERS OF THE FLYING FORTRESS • THE NEW B-29 SUPERFORTRESS • THE STRATOLINER • TRANSOCEAN CLIPPERS **BOEING**



On to *His* job for Victory—Are you doing *all* you can to back *Him* up?

The name "IRVIN" on the harness means the chute is produced in an Irvin Factory with over 23 years' experience and skill in chute-making. Literature can be had by school or training executives for the asking. Address Main Office, Buffalo, N. Y.

THE CATERPILLAR CLUB: Founded in 1920. There is only one qualification for a life membership—in an emergency men and women who have saved their lives with parachutes. The word CATERPILLAR and representation of a caterpillar are registered trade-mark features of Irving Air Chute Co., Inc. We are anxious that the Club Register be kept complete and members upon enrollment will receive a gold caterpillar pin with the name inscribed thereon. Communicate with Main Office.

IRVIN Air Chute
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IRVING AIR CHUTE CO., Inc.

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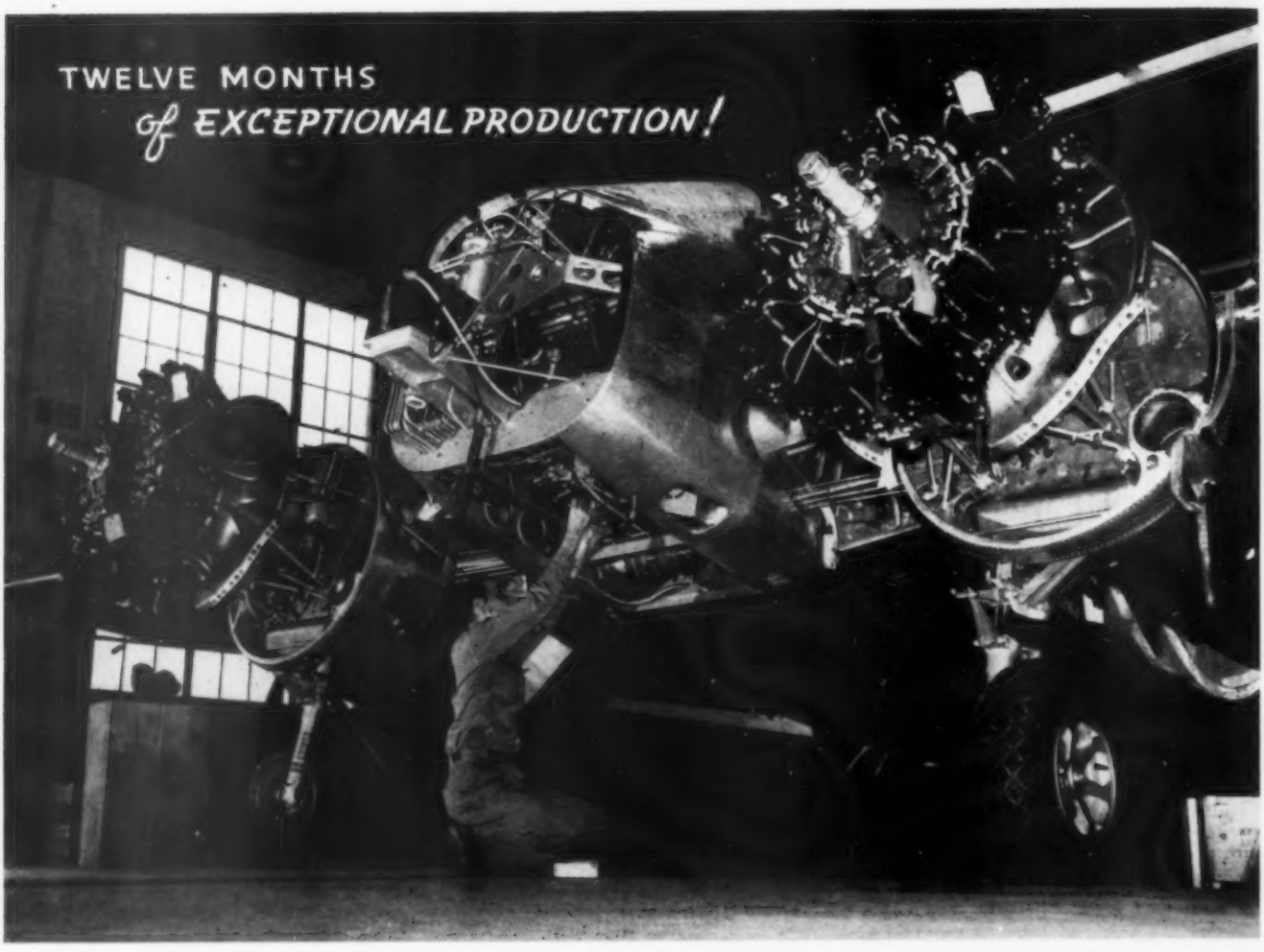
Factories at other points in United States, Canada and England... All Serving the United Nation's Air Forces



KEEPING PACE....

THE story of America's wartime industrial accomplishments is one that will live long after victory has been won. Keeping pace in the production race to equip the battle forces of the United States has been a severe test for both men and machines, but wartime industry has answered the call to arms with the needed production. Globe Aircraft Corporation is proud to be among the group of American manufacturers which have made good on wartime assignments. Back of the twelve-month record of production just completed by Globe is a force of efficient workers who share the commendations the company has received from Government authorities for meeting or exceeding every monthly production quota.

GLOBE

Manufacturers of the AT-10 Advanced Trainer and The Swift GC-1

GLOBE AIRCRAFT CORPORATION FORT WORTH, TEXAS, U. S. A.

★ ★ ★ ★ ★

He has the look about him of a family doctor—kind, thoughtful, earnest. And as he uses this master machinist's gauge, like a physician's cardiograph, checking the heartbeat of production, you feel that every fibre of his body is devoted to improving methods and creating devices so that men and machines can together build more and better equipment for our fighting forces. It has taken the skill of many to develop Solar's specialized ability to handle *stainless steel*. You see, stainless steel in addition to being one of the finest of all metals for many purposes is also one of the most difficult to work with. But, thanks to the tireless effort of these craftsmen, Solar now produces in vast quantities those quality products which previously could only be manufactured in limited numbers.

ARMY E NAVY

SOLAR

STAINLESS STEEL PRODUCTS

SOLAR AIRCRAFT COMPANY, SAN DIEGO 12, CALIFORNIA

POWER
TO WIN
Continental
Red Seal
Engines
Powered as the Nation
CONTINENTAL MOTORS
AMERICA'S STANDARD
The strong surge of power which is rolling back the black clouds of war, now permits us to see clearly the light of Victory – a flaming light of liberation that foretells a new age of peace and security. In that age, Continental Engines will contribute greatly to the best needs of mankind, even as now they are shortening the war with their Power to Win.
ARMY E NAVY
Awarded to the Detroit and Muskegon Plants of Continental Motors Corporation for High Achievement
Continental Motors Corporation
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MUSKEGON, MICHIGAN
YOUR DOLLARS ARE POWER, TOO!
BUY WAR BONDS

Speed to Win

To some the National Air Races were a Roman air holiday. But to thousands who cared, Cleveland was a proving ground for new and better engines, faster and safer planes.

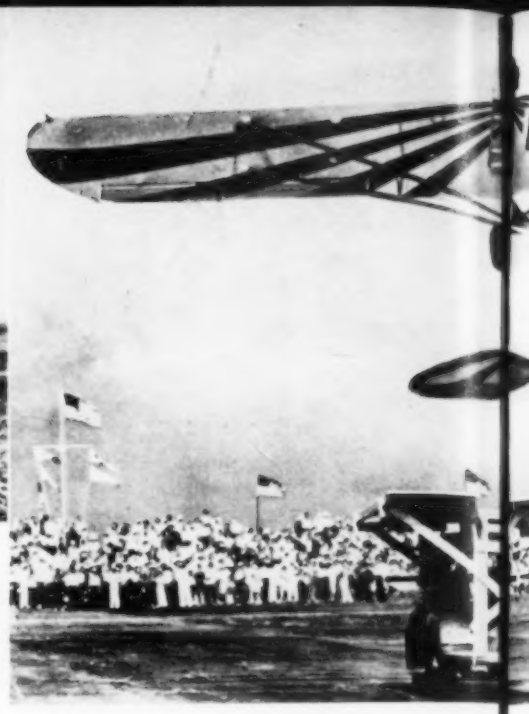
By MAURICE RODDY

S-P-E-E-D! That's the answer when it comes to combat flying, for fast wings carry victory. Each extra burst that the pilot can throttle out of his roaring engine frequently provides the slim margin needed for a safe return. That Uncle Sam has fast wings is an accepted fact established by ever increasing victories of American airmen whost feats have been justly blazed across the front pages of a nation's proud press.

How these speedy wings were developed is the forgotten story of aviation. Accordingly, let's look back with the eyes of memory to the famed Cleveland National Air Races which some of aviation's present "top hat" folks are only too eager to describe as the "peanuts, popcorn and candy" circus variety of flying. They completely neglect the fact that while the national air races had all the appearances of a "Roman air holiday", they still were the proving grounds for new and better engines and safer aircraft. Every plane and each pilot was a "guinea pig" contributing vitally to the development of aeronautical science. Many of them left their broken planes and bodies in the new chapters they attempted to add to aviation history. Verily, here are another few to whom so many owe so much. Plunging to their deaths, these pioneers of today's speed did not just provide a circus thrill for morbid spectators. Their tragic failures in most cases furnished research engineers with the correct answers which drawing boards could not produce. New ideas born in blood contributed to the nation's air progress.

From those who have survived the gruelling Thompson Trophy race, additional facts were learned for the blueprints of development. Without doubt, the greatest of these early speed kings is Col. Roscoe Turner, the swaggering, colorful "swashbuckler of the air". No pilot ever won the Thompson twice. Turner won it THREE TIMES. No pilot ever won the coveted international Harmon Trophy twice except the blue-uniformed Turner. Frequently kidded about his blue uniform and gold diamond-studded wings, Turner's unequalled achievements as a racing pilot painted red faces upon his "desk flying" critics. He is the all-time champion of close-course racing.

After winning the 1939 Thompson, Turner announced his retirement as a racing pilot. As he left the speaker's stand and his car was slowly carrying him past the packed stands for a last time, the spectators suddenly realized that a great champion was waving farewell. Leaping to their feet, they roared a salute of thundering applause given only to a champion of champions. It continued long after Turner's car had left the field where his



All's not roses in speed flying as this photo of Col. Roscoe Turner's wrecked $60,000 Wedell-Williams shows. He cracked up on the desert south of Gallup, N. M., en route to enter the 1939 Bendix, escaped with slight injuries. Aerobatics and artful stunts had their place in the National Air Races program. At right is the top performer on the card—Danny Fowlie taking off a Piper Cub from the top of a moving auto (landing back on the car was the next sequence).

daring skill had won fortune and lasting fame.

Hanging up his racing wings did not mean that Turner was through flying. Today, the veteran of years of pylon chasing is head of one of the nation's biggest flying schools located in Indianapolis, Ind. Here, hundreds of flyers have been graduated into the military or naval air forces and are now flying the Axis out of the war skies of the world.

Commenting recently on the value of air racing, Turner declared, "Vast contributions have been made to both commercial and military aviation by speed flying. The main progress was made with radial motors which were subjected to strains in closed course racing that even the manufacturers did not believe were possible.

A famous three-some: Col. Roscoe Turner (left), three-time Thompson winner; Doug Davis (center), whose red and black Travelaire in a 1929 free-for-all set the pace for the Thompson classic; and Lee Gerlach, one of racing's most colorful figures.

"All racing is experimental flying. Back in 1928, most automotive engineers and numerous pilots, including myself, were convinced that it wasn't possible to cool a 600-horsepower motor with air. Racing experiments soon disproved that theory and it was learned that more than four times this horsepower can be cooled adequately. It was also believed in 1932 that it would be impossible to build a 300-mile-an-hour airplane around a radial engine. My Thompson plane "Miss Champion" clocked 375 mph, a mark passed by modern fighters equipped with radial power plants. However, today's fast combat planes would have never been developed without the proving ground of the National Air Races where aviation's new ideas were tested."

Immediately after the finish of a Thompson, the engine in Turner's plane was torn down so that research engineers could find out why Turner was either a winner or loser. Sometimes a new plane was created or an old one rebuilt. Again, there were more months of heartbreaking experimenting with plenty of accompanying financial headaches. Unlike the Schneider Trophy races, the pilots participating in the National Air Races were not provided with government planes. These early air speedsters paid for aviation development out of their own pockets. Their only hope of reimbursement was to cross the finish line "in the money".

Maj. Gen. Jimmy Doolittle, Jimmy Wedell and Jimmy Haizlip were among the national air race greats whose speedy wings contributed to the development of radial engines. Achievements of the "flying Jimmys" also solved many of the problems faced in cooling, lubrication and metallurgy.

When Colonel Turner took off for his final Thompson, he had to win. Practically every penny he had was invested in the wings which were carrying his future career. This was a load in addition to the wing loading of Turner's racer which aeronautical engineers said, "Just can't be." Each square foot of wing and tail surface had to lift 52 pounds. Power loading was four pounds and a few points with 5,000 pounds of cantilever wing, fuselage, motor and gasoline. It was also up to 1,200 horsepower in the nose to produce 300 miles an hour, which was going places back in 1939. With such a loading, it took guts to slide this man-made thunderbolt into a vertical around the pylons. No. 4 pylon and "home" in the Cleveland races are located close together and have the grandstand between them. They require about 70 degree turns while the pylons on the back stretch call for about 110 degrees of direction change.

Blazing around these pylons on your side soon causes a pilot to forget his lap count. Turner solved this problem by pasting a number of adhesive strips on his instrument board. Each time he shot by the grandstands, he yanked a strip off the panel and at the same time checked his count with the six-foot numerals held up by the ground crews.

Reviewing the Speed Decade

Besides the closed course aces, one must not overlook the aerobatic stars who completed the air race program. These daring stunt pilots actually turned an airplane inside out as they executed their thrill-packed routines. Turning back the pages of aviation

Rudy Kling and his Folkerts Special, with which he won both the Greve and Thompson air races. He was killed when he crashed later during the annual Miami air maneuvers. The little plane's six-cylinder inverted Menasco Super X Buccaneer was rated at only 290 hp., but Rudy averaged 256.91 mph. to win the 1937 Thompson and demonstrate the efficiency of a stock-type in-line American engine.

history a few years, can't you see the one and only, Harold Johnson, putting his seven and one-half ton tri-motored Ford through spins, falling leafs, loops and other exciting maneuvers usually performed by the small stunting planes?

Sharing the spotlight with Johnson were Danny Fowlie and Don Berent, Beverly Howard, Capt. Dick Granere, Bob St. Jock, "Squeek" Burnett, Jesse Bristow, Tex Rankin, Mike Murphy and numerous others whose spectacular feats are still discussed in the Gun Room of the Carter Hotel in Cleveland. During the air races, this was headquarters where the nation's airmen were welcomed by Fay Thomas, now vice president of the Book-Cadillac in Detroit. Here, too could be found Cliff and Phil Henderson, directors of the world's greatest air show.

At this point, it might be advisable to describe how the famed Cleveland National Air Races were born. In 1929, Douglas Davis of Atlanta, Ga., had a "mystery plane". It was a red and black Travelaire powered by a Wright Whirlwind engine. Thompson Products, Inc., was asked to donate a cup for the winner in a 50-mile free-for-all speed contest. Davis won the event with an average speed of 194.90 mph., which was remarkable for its day.

In addition, Davis' performance doomed the biplane for super-speed design and marked the first occasion that a civilian plane had ever beaten military ships in speed competition. This 50-mile speed dash suggested the permanent establishment of an annual international, free-for-all race to serve as a practical test of aeronautical progress. Accordingly, the first real Thompson trophy race was flown in 1930 and was won by Charles W. "Speed" Holman of Minneapolis who clocked 201.90 miles an hour for twenty laps around a five-mile course in the only biplane ever to win a Thompson. This was the first and only Thompson race in which military planes also competed against civilian craft. Four of the seven military entries finished, with Lieut. Paul T. Adams of Nogales, Arizona, scoring fourth place. James Haizlip finished second with an average speed of 199.80 mph. while Benny Howard won third place honors with an average speed of 162.80 miles an hour.

Other Thompson winners have included: Lowell Bayles, 1931, with a mark of 236.23 mph, nearly four miles a minute; 1932 winner was Jimmy Doolittle whose red and white Gee Bee average 252.68 miles an hour around the ten-mile closed course for 100 miles. This record stood until Michel Detroyat of France set a new mark of 264.26 in 1936.

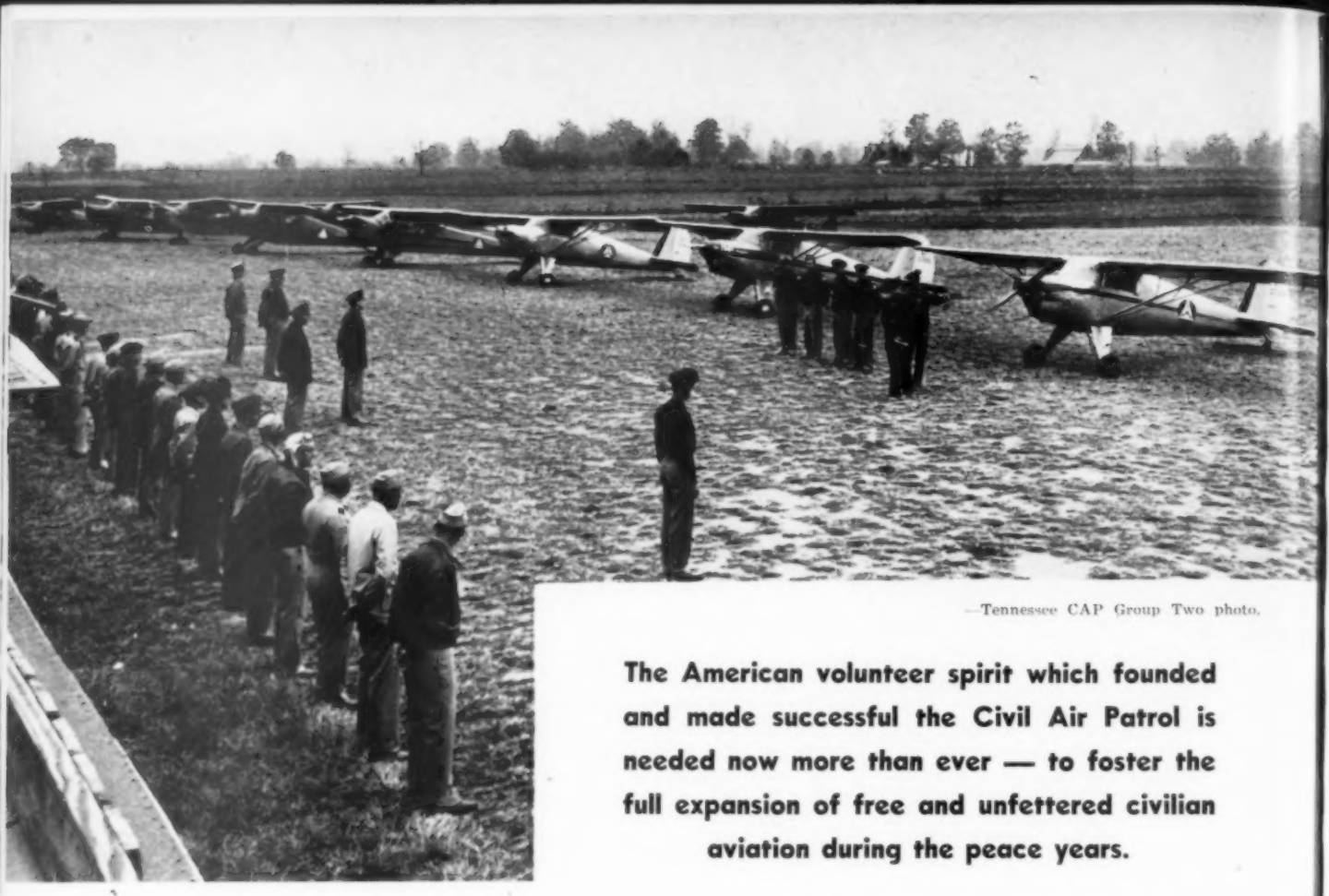
Jimmy Wedell of Patterson, La., brought home the bacon in 1933 in a Wasp-Jr.-powered Wedell - Williams with an average speed of 237.95 mph. Roscoe Turner was leading in the 1933 race until he cut a pylon.

Postwar Olympics Proposed

However, in 1934, Turner won his first Thompson with an average speed of 248.12 miles an hour. During this race, Douglas Davis crashed to his death. Flying Benny Howard's "Mister Mulligan", Harold Neumann of Moline, Ill., placed first in the 1935 Thompson. At the start of the tenth

(Continued on page 44)

Jimmy Doolittle piloted a red and white Gee Bee 252.68 mph. for a closed course record which stood five years. Now he's directing air strategy over Europe as a Lieutenant General after a meteoric rise in military rank. Below are Maxine and Benny Howard, whose contributions to air racing have been outstanding.



—Tennessee CAP Group Two photo.

The American volunteer spirit which founded and made successful the Civil Air Patrol is needed now more than ever — to foster the full expansion of free and unfettered civilian aviation during the peace years.

WHAT NEXT, MINUTE MEN?

By DEVON FRANCIS

WILLIAM Jennings Bryan, the Great Commoner, was fond of saying before the United States came to grips with Germany in the spring of 1917 that if this nation were attacked a million men would spring to arms overnight. He didn't see it happen. It didn't happen in World War II either. But, for its character, something just as spectacular — almost incredible — occurred among the nation's civilian flyers late in 1941.

Much of the story of the Civil Air Patrol, the only civilian organization permitted to wear the U. S. insignia on its uniform, has been told by now. Newspaper and magazine readers and radio listeners know that dozens of thousands of cow pasture pilots did spring to the service of their country soon after Pearl Harbor. They know that CAP flyers did yeoman service in banishing the menace of the U-boat. They know that they flew tens of millions of airplane miles on behind-the-lines chores to release thousands of Army airmen for combat service.

What they don't fully realize as yet is that the CAP is a candidate for a peacetime job which, if properly done, could forever and a day prevent a duplication of the sorry state of America's air defenses when the Japanese selected Hawaii for some field day exercises.

On March 1 a group of men unconnected with the CAP proper made known the formation of the Civil Air Patrol League, Inc., "to insure America's supremacy in the air for all time, military, commercial and civilian." Its primary function, as outlined by Thomas H. Beck, president of one of the biggest U. S. publishing houses, is to support and aid the CAP Cadet Program, under which the fundamentals of aviation are taught to young men and women of predraft age, and to obtain civilian backing for aviation development in every community.

That's a man-sized order. The second half of it will be even a bigger order when the men wearing the propeller insignia on their sleeve patches return to civilian pursuits.

Lest We Forget

The future of the CAP movement deserves examination against the backdrop of its past and current performances.

The CAP was born simply because there is nothing hardier or more obstinate than a civilian flyer who wants to keep on flying. Once the personnel of the CAP got immersed in the job of helping win the war, they gave more than what was required of them. They bought their own uniforms, spent their own money and mortgaged their time. They contributed their own planes, built a lot of their own airfields and contrived maintenance equipment with the savoir-faire of a ma-

gician commanding a genie to issue from a bottle. But the fact remains that the soul of the CAP was the independence (and patriotism) of a group of hard-bitten individualists who saw no sensible reason why (a) war should stop all civilian flying and (b) men who flew by the iron compass could not help beat the Axis.

For all their uniforms and insignia, they remained civilian flyers. In their anxiety to do a good job they broke most of the rules in the book. They flew so low over the waves in coastal patrol work that they lost their trailing antennae in the water. They flew in emergencies without life jackets. Unconsciously perhaps, they were out to prove the case for private flying in a national emergency.

The stories of their exploits are legion. Off Florida searchers found a CAP pilot and his observer sitting nonchalantly on the decaying hull of a freighter far offshore, which was a matter of no great moment except that the observer was as naked as the day he was born. It seems that the observer always encountered a lot of engine static when he tried to radio his report to the base. The pilot throttled back and went into a glide to douse the static and when he reached for his power again it was no dice. Getting a landplane down in choppy salt water is no child's play but they made it. The observer shed his clothes because it was easier to swim naked than it was in a water-soaked uniform.

More grim was an incident that led to the awarding of Air Medals to CAP Maj. Hugh R. Sharp, a base commander, and his co-pilot, Lt. Edmond I. Edwards, by President Roosevelt at a White House ceremony. CAP Lt. Harry T. Cross had had to land at sea. He managed to escape from a flame-eaten plane but his observer was not so lucky. He perished. Sharp and Edwards spotted Cross, burned and injured, in the trough between two waves. The sea was rough. Gingerly they brought their Sikorsky amphibian down on to ten-foot swells. Something had to give in the process. The left wing float was so badly damaged it was useless. Even as the plane threatened to capsize, they hauled Cross aboard. Now three men would be at the mercy of the waves in a wounded plane unless they contrived a way to meet the emergency.

They did. Edwards crawled out on the right wing to keep the ship on an even keel. There he clung for eleven hours as Sharp taxied toward shore. He had to stay at his miserable post even after a Coast Guard boat took them in tow.

All the CAP units were blessed with a bottomless ingenuity. On the Gulf Coast rubber lifeboats were at as much of a premium, of course, as they were on the Atlantic. But if the Office of Civilian Defense, to which the CAP was then responsible, feared that patrol flyers would go down in the drink with nothing to keep them afloat, it reckoned without the resourcefulness of the CAP in Texas. CAP units rigged their own versions of lifeboats. Into truck-size automobile inner tubes they fitted canvas bags and called the whole contrivance a "Barracuda sack". The bag carried a fishline, a canteen of water, a flashlight and food. The bag was necessary to keep away the barracuda which have sharp teeth and a distressing habit of chomping on human extremities.

For months the CAP carried on its work in silence after National Commander Earle Johnson, by sheer persistence and argument, succeeded in getting it half-way equipped to do the job the Army and the Navy expected of it. Then little by little stories began leaking out about the invaluable services it was performing. Finally the Office of War Information issued a report. It was a loosely-done job on the starry-eyed side in which Colonel Johnson's Waco was called a Curtiss-Wright, but it did serve to focus attention of the Washington correspondents corps on the CAP. It referred to the men and women of the CAP as the world's largest aerial home guard who had flown more than 20,000,000 miles. The fact was that the CAP Coastal Patrol alone had flown that far over salt water. The Second Air Force Courier Service by itself rolls up about 9,000,000 plane-miles a year.

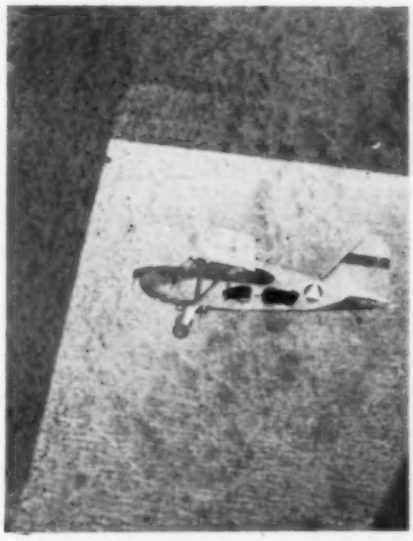
What the OWI report failed to mention at all was the jockeying that had been going on in official Washington that had hobbled the CAP for fair. And that brings us around to the point of our story.

Strength from Scrap

In the spring of 1943 the CAP had become an invaluable adjunct of the Army. Its courier services, its searches for lost planes, its forest patrol flights during the fire season and the hundred and one other chores that it was so nicely tailored for made it almost an Army branch. So negotiations had been begun to make it an auxiliary. In the politics-laden air of Washington the transfer of a part of a civil agency to the administration of one of the armed services is a delicate operation. Using the scalpel on the OCD to remove the CAP from it required finesse. The CAP might not come free if anybody jiggled the table while the cutting was in progress.

Somebody did jiggle it. At that same moment the Civilian Pilot Training Program was going through some

(Continued on page 46)



Unarmed single-engined sport planes such as this Stinson, shown forty miles at sea, were used by CAP volunteers to patrol the coasts for enemy U boats.

Inland squadrons have busied themselves with a wide range of training activities. Here are some Arkansas CAP'ers in a class devoted to firearms study.

Capt. William F. (Uncle Bill) Van Cleave, seventy-two (right) bids farewell to his side-kick, Master Sgt. Steve Sinkler, sixty-nine, at a coastal anti-sub base after the Navy relieved all AAF establishments, including CAP, of the patrol. They are perhaps the oldest active A. & E. mechanics in the U. S. Sign over hangar door indicates the antiquity of the equipment based there and flown on anti-sub patrol.

25,000 LANDING FIELDS?

By CHARLES E. PLANCK

★

WHEN peace comes, there will be an important new crop for farmers to consider—especially farmers who like flying.

Instead of raising corn, tobacco, cotton, oranges, sheep or goats, the farmer will raise a small airport on his roadside acres. Not only can he make money out of such a "crop," but he can keep his boys and girls from forsaking the farm and going off to the city.

The prospect of a profitable enterprise in setting aside a few acres for use as an airport, is based on two facts: the tendency of Americans to travel, and the proven success of roadside facilities catering to traveling Americans. It is entirely probable that the history of the automobile in building up a huge roadside industry in the U. S. will be repeated in a new and different way by the private airplane.

One enthusiastic proponent of small landing fields has suggested that, as a starter, one be located every five miles along the whole shaped Federal Highway system. That would mean approximately 25,000 small T or L airports and would put a basis of practicality at once under all the plans for promotion of the personal airplane. The Cessna plan calls for about 25,000 fields somewhat differently located, and neither plan is considered the complete and final answer by its sponsor. The real beginnings are likely to be somewhat different, but they are certain to affect the farmers who own land along the most traveled highways.

An enterprising farmer would get into action at once, and probably go about it this way:

For an airport of two runways 2,000 feet with a clear landing area 300 feet wide, he would set aside a total of about twenty-six acres. That would be the amount of land which the farmer would dedicate to the flyers who wanted to use the field. It would, of course, lie along the highway, be reasonably level and well-drained and accessible from the highway. Upon those acres, he would receive no direct return; he would, in fact, have certain expenses connected with the plot similar to the business of plowing and cultviating the crops which he once raised on it.

On the adjacent land he would raise his profitable crop. Another strip 100 feet wide down the long side of a runway, about four acres, or other plots at either end of the runways or in the angle, he would devote to the roadside facilities which travelers need; a restaurant, tourist cabins, hangars, filling station, picnic grove, even a small hotel, or a swimming pool and tennis courts, as the local conditions dictate.

That is the bare plan, with no attempt made to imagine the amazing things which American ingenuity will produce to make personal airplane travel about this country as interesting as automobile travel has become. When you begin to embroider the plan with American inventiveness and originality, you begin actually to arrive at this Air Age we have been peeking at around the corner for all the years.

The farmer has to make money out of this venture. It might be reward enough if it persuades his youngsters to settle down at home, a short forty-minute flight from the city, to help him manage the farm and airport, but it will be better if it actually turns in cash for his efforts. Under average conditions it wouldn't have to be much of an airport to turn in what he has been making on his twenty-five to thirty acres, if the nationwide farmer-income figures are considered.

First, the average value of an acre of farm land in the U. S. is about $33.50. There are great extremes in value however, ranging from $1,000 an acre for well-developed orchards to a few cents an acre for land completely useless for cultivation. There is much land that must lie fallow every other year, and on which the annual income is very low; much that is useless to the farmer for anything but grazing; much that is strictly marginal and uneconomical to cultivate; and land useless for cultivation which would require filling or leveling to make it suitable for airport use.

There are too many variables to permit estimating average income per acre on a national or even a state scale. Likewise the population of the neighborhood, wealth of nearby residence and the location on or near well traveled routes will determine possible income from the land when used as an airport.

The decision to "raise" an airport must be made by each farmer as he stands on his own land, examines his own income figures, observes the surface traffic along the road with which he is familiar, and estimates the potential in aerial travel along that route. Pilots could help their farmer friends in possible aerial traffic.

The sources of income from airports are mainly rentals and services, always with variations. Tourist cabins are profitable, as thousands have proved. A restaurant is a steady business that can become profitable if properly managed. Here, any pilot will want to interpolate his own comments on the average present-day airport restaurant at which he has gambled with his stomach. And many an automobile traveler will want to stop and remember the wonderful meals he has eaten in out-of-the-way little places along the roads.

Hangars can be built and rented by the owner, or land leased to plane owners living nearby who want to build their own hangars. The sale of gas, oil and simple accessories, both to the automobile trade along the road and to the airplane trade will be an important source of income. Minor mechanical service jobs would add to the returns.

Beyond those "necessities" will lie the field of extras and luxuries, like swimming pool and hotel, these facilities depending, of course, on location and need.

There are many questions, economic, aeronautical, agricultural and geographical, which cluster around this idea, too many to be answered here. There is, however, an interesting method of getting the answers, and

Practically everybody agrees we'll need small airports by the thousands if personal flying is to find full development. Here is a sensible proposal for getting the ground work accomplished now with a minimum of time and expense.

getting them locally as to states and therefore, more accurately.

Let the Aeronautics Department of the State University institute a "small airport study", and make of it a laboratory project for several departments of the university. It has aspects that should interest the following departments: Agriculture, Aeronautics, Law, Engineering, Architecture and Journalism.

Such a study might work like this: The whole plan would be directed by the students in the Aeronautics courses. They would supervise the studies of others in the other departments who would investigate and recommend strictly within the scope of their subjects. Upon completion of the study, the aeronautics students would present their findings to the authorities concerned, and their state would have comprehensive, factual material on which to base its program for private flying fields.

There are important policy questions in connection with the establishment and operation of privately-owned airports, and these ought to be explored with the proper state and federal authorities.

Agricultural students would survey the land of the state lying along main highways, including land near cities, towns and villages, near scenic spots, resort areas, historic sites, etc., and also determine what land so located belongs to government, either state or national. They would investigate the best type of sod for airport use in various parts of their state. They would compile land cost and land utilization and land production figures. They would direct some of their studies at the possibilities of airports as alternate "crops" for the farmers of their state.

Law students would study airport law within their state and nationally, land laws that would be affected, laws regarding possible state investment in airports, and in maintenance thereof, all laws upon which installation of this new type of public facility would impinge.

Engineering students, in close collaboration with aeronautics students, would make physical studies of possible sites, design typical connecting driveways from highway to roadside airports, study sewer, water and gas provisions, and related subjects.

Architectural students would design buildings for typical airports, using a type of structure consonant with the region, and working to produce attractive and functional structures which would add to and not detract from the appearance of the countryside. Working with the engineering students, they would build models of typical airports for use in publicity.

Journalism students would publicize the whole study, and conduct liaison with other similar projects that might originate in other states.

Aeronautics students would have all the design and layout of the airport to do, and supervision of the pertinent work of other departments. They would be working in a new field, since airports of this type are today non-existent, and they would have a bright, new opportunity here for important contributions to the future of aviation. Small airport design is still an inexact science, and progress pushes the airport engineer as hard as it does the airplane designer.

State officials, city officials, airplane manufacturers and farmers would be grateful for such a study as this. Its economic possibilities in a postwar world could be considerable. Most grateful of all, however, will be those who are flying today, and the college students themselves and their brothers and sisters who will be flying tomorrow. ★ ★ ★

How and Why the Civil Air Patrol Should be Made Permanent

By Frank D. Compagnon, First Lieut., CAP

The second of three monthly awards of $64 offered by SOUTHERN FLIGHT *for letters on this timely and important subject goes this month to Lieut. Compagnon, who is Training Officer of the Group Three, Colorado Wing, Colorado Springs. Winners of Runner-Up and Honorable Mention selection are listed on page sixty-eight of this issue. Scores of letters from all sections of the nation have been received. The Editors believe those who had the initiative and the spirit to write such letters have accomplished much for the future of aviation. Although the three-month contest expires on April 15, with the final winner to be announced in our May issue, we earnestly solicit and will welcome suggestions and ideas on this subject at any time during the months to come.*

I sincerely believe that I've got the best job in Civil Air Patrol —that of training officer. It's been a source of solid satisfaction to me to see what disciplined instruction and a uniform can do for an individual. It's a job that has made me see the importance and benefit of making Civil Air Patrol a permanent organization. It has also made me realize that more can be accomplished with a military set-up than with a loosely knit "aviation club."

Why should Civil Air Patrol be made permanent?

1. Private aviation will have many battles to fight after the war. We can fight these battles of legislation better as a powerful and unified organization.

2. Germany is already planning the third world war. Some say she intends to start with us next time. We may not have that year or two of grace in which to whip up an air force next time.

3. Our youths are keyed up to an abnormal pitch. Let's be able to promise them that all their hopes and ambitions will not be forgotten the moment peace is won. Let's be able to go right on with a sound aviation program with opportunity for all.

How can the organization be made permanent?

1. Preserve the military set-up. It gives better control.

2. Establish summer schools conducted along military lines, where students may work for reserve commissions.

3. Maintain a nation-wide air network, with cross-country missions a part of training and membership. Young men and women could learn to fly, see the country, broaden the spirit of unity, and put their training to practical use by week-end visits to other units.

4. Keep our aims and principles constantly before the nation.

5. Seek recognition and support from the government in giving Civil Air Patrol a permanent status.

Now is the time to plan these things. Now is the time to work for them. Civil Air Patrol, with its colorful red shoulder loops, has won the admiration of the nation. We have made history, but let's not live in the past. We have the future to win.

After flying 1,455 miles in only 1,288 hours through the Arctic's snowy wastes, Col. C. R. Storrie (left) raised his sights for Texas. His coveted decoration, the "Order of the Icicle and Igloo" (below), made him the Newfoundland Base Command's "No. 1 bush pilot". Capt. H. W. Brann (above) was formerly "the world's slowest airman."

RECORDS IN REVERSE

By HARRY C. RECKNER

IN this day of total war, founded on the speed, striking power and range of the modern fighting and bombing plane, we hear mentioned the magic names of Billy Mitchell, Eddie Rickenbacker, Baron Von Richthofen, Alexander de Seversky and a host of other airmen —men who have made great contributions to the advancement of aviation history.

But from San Antonio, Texas, cradle of U. S. Army Air Forces training, comes the nomination of two men, both Army officers, who by their own admission have done more to set back aviation history to the days of the horse and buggy than those who told Wilbur and Orville Wright "it can't be done."

Trans-Atlantic, trans-Pacific and trans-continental speed records are broken almost daily, but this pair of pioneers scoff at the records. They establish records in reverse.

History's Slowest Flight

Captain Herman W. Brann, former inspector of materials at Kelly Field who is now liaison officer between the air forces of the United States and Mexico, first claimed the dubious honor for having made the slowest flight in aviation history. It happened in 1931, Captain Brann relates.

"I was flying an old Curtiss biplane transport. In 1921, at the New York air show, the ship won first prize. It was the first transport built by an American firm.

"I got the ship when it was ten years old and it took me two full weeks to get it from Philadelphia to Chicago. When I got to Chicago, I wired Philadelphia and claimed the world's record for the slowest hop in contemporary aviation."

And evidently Captain Brann's experience with the "flying box cars" served him in good stead for, when the United States became defense-minded, he was the first man to be rated a service pilot in the Air Service Command. This entitles him to fly any type of plane, either combat or transport, anywhere except in combat zones.

Enlarging upon his "epic" flight, Captain Brann said he picked up the crate for a "song" when it was hopping around on its last cylinder. The ship boasted a 600-horsepower engine capable of "speeding" it along at 125 to 135 miles per hour.

"I took off from Philadelphia and almost before I had settled in my seat

for what I hoped would be a comfortable ride, I was forced down with engine trouble in a field only twenty miles from home.

"I let her sit there and began hunting for parts. After a major operation, she was rarin' to go, but apparently her old bones couldn't take it. We set down again at Harrisburg, Pa.—engine trouble. Fortunately, parts were available and she courageously took to the air again.

"The engine purred contentedly, everything was fine, then she acted like she was coming down with fits. It was almost impossible to keep her on level flight, so down we went—this time at Pittsburgh. Patches on the tail assembly had been loosened and had to be repaired and an examination of the motor revealed that the vibration of the old teakettle had torn it from its fastenings.

"Repaired, we took off, only to be grounded at Gary, Ind., with engine trouble again. Finally the 'mechanic's nightmare,' as she should have been dubbed, limped into Chicago. Those two weeks almost made a nervous wreck of me, but the experience gained on that flight was invaluable."

Technical - minded officers at Randolph Field, with the flight of a comrade, Colonel Carl R. Storrie, in mind, computed the average speed of Captain Brann's flight at 2.3 miles per hour. They immediately disputed his claim to the world's record and advanced the claim of Colonel Storrie to the undisputed title.

Arctic Mission Wins Honors

The record-breaking flight of Colonel Storrie took place between January 7 and February 18, 1942, when he flew 1,455 miles in 1,288 hours, an average speed for the journey of 1.3 miles per hour. This record flight was from St. John's Newfoundland, to an air forces station located far beyond the Arctic Circle in Baffin Land.

In recognition of this "shortest flight in the longest time," Colonel Storrie was awarded, in appropriate ceremonies, the beribboned decoration, "The Order of the Icicle and Igloo of the Newfoundland Base Command" and designated "No. 1 Bush Pilot."

The certificate attesting the flight time, which accompanied the medal, is signed by Hitler, Hirohito, Ribbentrop and Mussolini, although several handwriting experts are inclined to declare the signatures a forgery.

A more official document, setting forth the details of the cold-weather flight, bears the signatures of Major General Gerald C. Brant, now commanding general of the Gulf Coast Training Command at Randolph Field; Colonel Dyke Meyer, formerly of Kelly Field; Lieutenant Colonel Emmett B. Cassady of Randolph Field, and Lieutenant Colonel Jack Beretta, a San Antonio officer who is still on duty in the Far North, and certifies that Colonel Storrie's flight is the slowest in aviation history.

While Colonel Storrie has been the target of much jocular ribbing by his compatriots, his flight is recorded in official War Department files and is recognized as one of the outstanding aerial feats of the war.

Even before the United States entered the war, Allied military chiefs were worried over reports that German radio and weather stations were being operated in the Far North—in the remote vastnesses of Iceland, Greenland and other Arctic islands, supplied by submarines and planes.

Counter measures were instituted and bases were established above the Arctic Circle in an area including Baffin Land, a strategic island under the Canadian flag located between Greenland and northern Canada. This barren island, its 236,000 square miles covered with thick tundra and inhabited only by Eskimos, became a strategic observation, radio and weather station. Reports from this station aided in reducing the natural dangers of the hazardous crossing of the North Atlantic by convoys carrying precious war materiel for the fight against the Axis.

In December, 1941, shortly after Pearl Harbor, an urgent message was received by the Newfoundland Base Command from an outpost on the strategic island.

"Send radio repair parts."

It was imperative that this station remain in operation.

Three C-64, Universal high-winger, single - engine monoplanes manufactured by Noorduyn, Montreal, Canada, only equipment available, were loaded with the radio parts and other equipment. The planes are powered by 650-horsepower Pratt & Whitney motors. They carry a pilot, co-pilot and six passengers or a corresponding load of freight. The planes are equipped with Hamilton standard two-blade, constant-pitch propellers and skiis were substituted for wheels on the undercarriage for landing on the snow.

Colonel (then lieutenant colonel) Storrie, with two other pilots and several enlisted men, volunteered for the trip. The only access to the isolated stations along the coast of Labrador and Baffin Land from August to June is by air.

Due to forced landings in extremely bad weather, two of the planes were forced down and cracked up. They had to be abandoned and the crews returned to their base in Newfoundland. Colonel Storrie, with his companion pilots, reloaded the colonel's plane with the vital supplies, necessarily overloading the craft and courageously continued the journey. The mission was completed February 18, 1942.

The flight was made under extremely low temperature conditions in bad weather and the physical discomfort of the men could not be measured. The planes were not ejuipped with such safety devices as de-icers, hence the hazards of the journey were increased tremendously. The pilots were not afforded the aid and comfort of radio facilities, weather reports or accurate maps.

"Without the badly needed radio repair parts, the missions of the Arctic posts would have failed of accomplishment, and it was only through the leadership of Colonel Storrie combined with the professional knowledge of the men accompanying him and the daring of all three, that the mission was a success," General Brant said in citing Colonel Storrie for "exceptionally meritorious conduct in the performance of outstanding service."

Colonel Storrie, who now commands a Marauder squadron of the 8th U. S. Air Force in England, has been recommended for the Legion of Merit Medal for his achievement. But he would trade all his medals and citations for one glimpse of the son his wife recently bore him in a San Antonio Hospital. ★ ★ ★

Mustang Claims Speed Crown With "425 Plus"

With the editors of SOUTHERN FLIGHT watching, Test Pilot George Maddison last month flew a production model P-51B in level flight at a speed described by North American Aviation's Dallas plant officials and War Department spokesmen as being "in excess of 425 miles per hour." How much "excess" was not detailed, but it compared favorably with the published level-flight speed of 450 m.p.h. boasted by the British Mosquito—enough for the War Department to call the Mustang the "world's fastest fighter." Pilot Maddison twice whizzed past the tower where the writers were posted. The Rolls-Royce Merlin's exhaust was more of a blast than a roar, exploding with the sound of a bomb while the plane itself appeared to run off and leave the detonation.

Alternate Airport Adventure

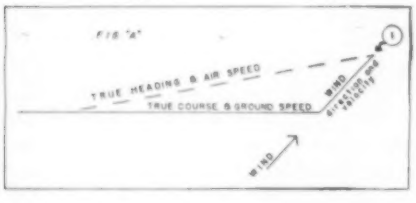
By LARRY J. FISHER
First Lieut., CAP, TFP

AMBLING along in another chapter of our Unscientific Method of Navigation, we'll lay aside the E6-B Computer for the moment and attack that old gremlin, "The Alternate Airport."

With its perpendiculars, intersections, relative velocities and mathematical formulas, it's a formidable-lookin' bogie to frighten little boy and girl pilots who are preparing for "writtens."

In this installment, I'll try to tear off old Alternate's false face and show you he's just a country boy having fun by barking "boo" at quaking students.

Triangles of velocities are high-powered soundin' but if we grasp the plain English meaning of them firmly by any two of the three sides, we'll never have trouble with graphic solutions of radius of action, interception or alternate airports.



First, a brief refresher: Look at Figure A above, please. Note that true course and ground speed are the same side of the triangle; true heading and airspeed, (indicated by a dotted line) have their side together and wind is the third (usually the short) side. That's all there is to it. Practically all graphic solutions of navigation problems are based on this simple triangle.

Memorize this triangle. Always associate TRUE COURSE (the course drawn on the map) and GROUND SPEED and the other sides will take care of themselves.

The slick thing about our triangle is that if you have two sides you can find the third: thus, knowing (1) the true course-ground speed side and (2) the wind side, the third side (true heading-airspeed) may be found. The main function of computers is to construct this triangle for you.

Another nice point to remember is that the airspeed (and true heading) will always be attached to the *down* wind end of the wind side. (Shown by "1" in Fig. A.)

Ordinarily there is no need to know the drift angle or drift correction angle, for the solution will show both the true course and true heading. Drift is simply the difference between them.

I could throw in a parallelogram about this point, but let's have our Unscientic Method of Navigation continue on its "unrehearsed and carefree way," as they say on "Information, Please."

The Alternate Airport

Let's get on now to the alternate airport. My secret weapon for bringing down the correct solution with ease will be shown in bold type (the Editor willin') when we get to it and I hope it will end your Alternate Airport Abhorrence.

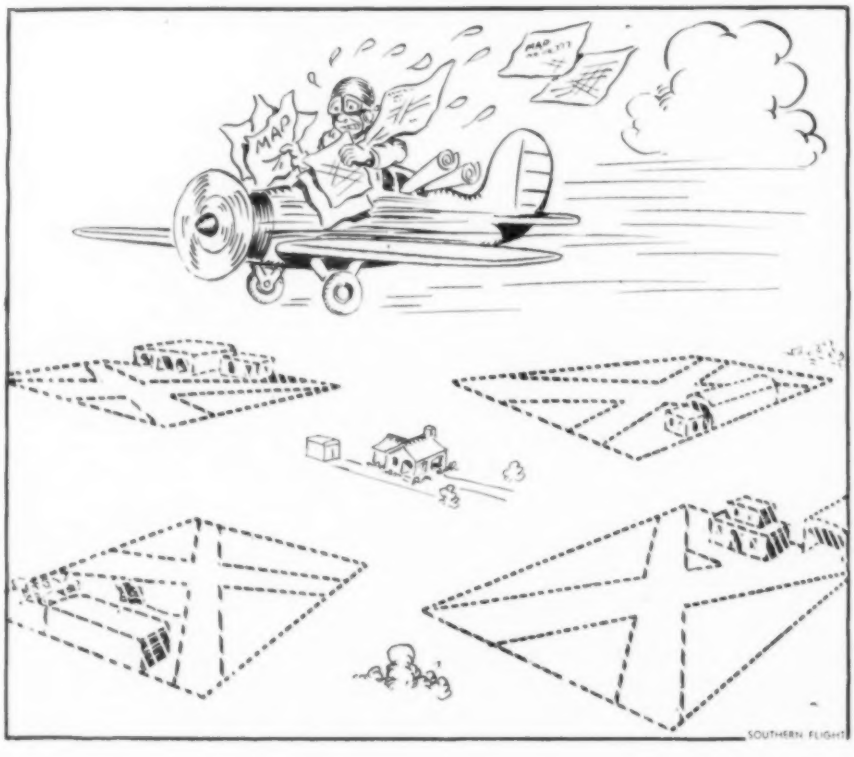
Designations like "point O, V, A and X" always scare me because there might be some algebra hiding behind them. So we'll call our departure point the "Base"; our destination, "Westport" and the alternate — well, "Alternate" just to make it difficult. Here's the problem:

Base to Westport: True course, 270 degrees. Distance, 300 miles.

Base to Alternate: True bearing, 230 degrees. Distance, 240 miles.

While we're on the subject of wind, remember that the wind line is drawn *from* the direction from which the wind is blowing. A wind from 100 degrees will blow *toward* 280 degrees. Your wind line should also head for 280 like a homing pigeon. Let your pencil go *down wind*.

It is very convenient to indicate the airspeed with a dotted line; ground speed with a solid line. Thus a dotted line will always represent *heading*.



Plotting Graphic Solutions

A few hints about plotting graphic solutions might be a help. Use a hard lead pencil sharpened to a fine point. As soon as a line is drawn, label it. Use one hour units.

Always plot out problems in true. Don't throw in magnetic and compass headings to confuse the problem. Convert everything to true before beginning construction of problems.

Use a large sheet of paper whenever possible in order to permit using a large scale. Greater accuracy will result.

Wind: 30 miles per hour *from* 250 degrees.

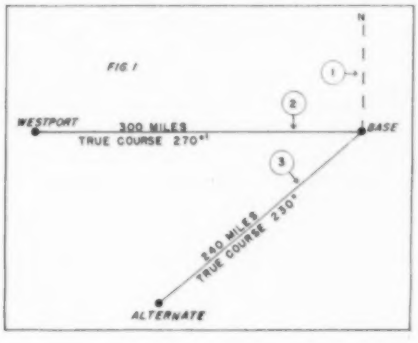
Airspeed: 100 miles per hour.

Fuel: 4 hours safe range.

Sharpen up your pencils, borrow a triangular engineer's scale, a ruler, protractor or snitch a Weem's Aircraft plotter and follow me on a big sheet of paper. We'll put old Alternate in his place with a flip of a protractor.

By making a rough sketch of the problem, we find that the place to begin is up towards the upper right hand corner.

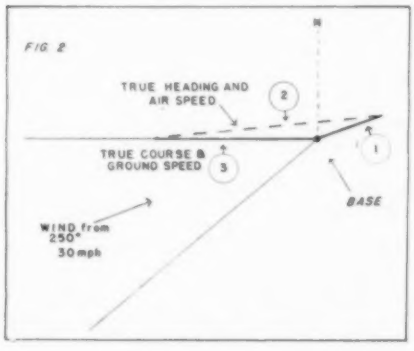
Quoting TM 1-205: "A straight line may represent a velocity; direction is represented by the position of the line; speed by the length of the line."



Step 1: Lay off a north-south reference line.

Step 2: Mark "Base," plot course to Westport (270 degrees) on any scale you choose. Distance 300 miles.

Step 3: Plot bearing (or course) Base to Alternate, on scale. (230 degrees, distance 240 miles.)

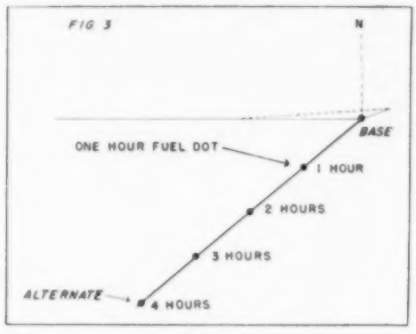


Step 1: Lay off wind. (*From* 250 degrees at 30 miles per hour). Remember the line goes *down* wind.

Step 2: From downwind end of wind line, swing airspeed (100 mph) to intersect the true course. Use a dotted line for airspeed, always.

Step 3: On true course line, measure ground speed from base to above intersection. (Ground speed 71 mph.)

This intersection represents one hour's flying. Later on, we'll call it a "one hour flying dot." For clearness, Figure 2 is shown as a close-up.



Now back to a "long shot," as they say in the movies. We're getting into the secret stuff I was talking about.

Consider the line from Base to Alternate. This is *NOT* a course to be flown. For our purposes it will be a yardstick.

Imagine this line is the airplane's gas tank with a capacity of the safe fuel hours (4 hours) shown in our problem. Maybe the reserve is in another tank . . . anyhow its unnecessary to consider it now.

Divide this tank (base to alternate line) into compartments — one for each hour's fuel. In this particular problem there will be four compartments because we have four hours safe fuel.

Bear in mind that this has nothing whatever to do with actual gas consumption, ground speed or the like. It's just the safe fuel capacity of your tank measured off against the line from Base to Alternate.

Divide the base to alternate line into equal parts, representing the number of hours fuel. Call each division one fuel hour.

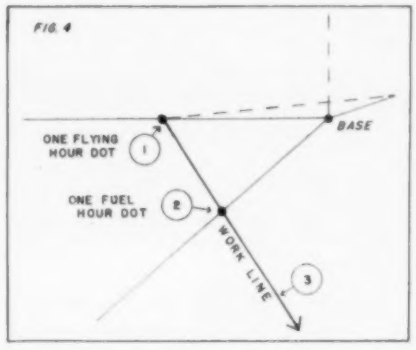
Having taken the above step, we are no longer interested in the second, third or fourth marks. Only the one hour fuel dot is needed from now on.

The illustrations which follow will be in "close up" since we are now interested only in one hour data.

Step 1: Locate the one hour *flying* dot. (This was found in solving the first wind triangle in Figure 2.)

Step 2: Locate the one hour *fuel* dot (which we found in Figure 3).

Step 3: Beginning on the one hour *flying* dot, draw a line, which we will call a "work line," *through* the one hour fuel dot and extend on out indefinitely.



(Caution: Always begin this line on the one hour *flying* dot and pass on through the fuel dot.)

This work line has nothing to do with courses, etc., is "unlicensed, unidentified and may not be flown," as we used to say way back in the Bureau of Aeronautics days.

Here now, Fledgling navigators, is my deep dark secret to prevent confusion on alternate airport problems. (Bold letters, please, Mr. Editor, as advertised.)

(A) Divide the base to alternate line into fuel hours (as in figure 3).

(B) Begin a work line on the one hour flying dot, pass through the one hour fuel dot and extend the work line indefinitely (as in Figure 4).

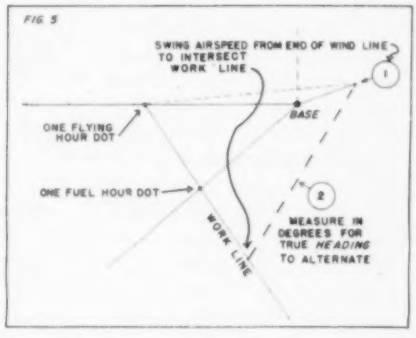


FIG 5
SWING AIRSPEED FROM END OF WIND LINE TO INTERSECT WORK LINE
ONE FLYING HOUR DOT
BASE
ONE FUEL HOUR DOT
WORK LINE
MEASURE IN DEGREES FOR TRUE HEADING TO ALTERNATE

We plotted the work line in Figure 4 for just one purpose which will now be apparent. Don't let this throw you —all we're going to do is to lay out another simple triangle.

Review: There are three sides: wind, airspeed and ground speed. What do we have here already? Wind. We need airspeed and ground speed to complete the triangle.

We don't know the ground speed (of this new triangle) but the airspeed is known—100 mph.

Okay, where do we hook the dotted airspeed line? Students? Right! To the downwind end of the wind line.

But where to swing it? Ah! That's why we made the work line.

Step 1: Swing airspeed (100 mph) from downwind end of wind line to

(*Continued on page* 50)

TEXAS HOST TO AV

Third Annual Wartime Planning Conference at Texas A. & M. College May 1-3 expected to be year's most important aeronautical event. Aviation Writers' Association picks occasion for annual convention.

"EVERYBODY'S COMING!" That's the latest word received from Texas A. & M. College about the 1944 Wartime Planning Conference scheduled for May 1-3, which already has substantially outstripped last year's conference in the number of advance reservations and program acceptances from aviation industry leaders and executives.

Conference leaders attribute the unprecedented interest in this year's event to the timeliness of the program due to the inclusion of sessions on aviation legislation and regulation and discussion groups for subjects with tremendous postwar significance.

Three years ago the first A. & M. Conference, held in conjunction with Texas Aviation Week, gave emphasis largely to the production, material and personnel problems of the manufacturer with only minor attention to other phases of the industry. Likewise, conference attendance was limited in a large part to people engaged in the industry within the broad geographical area generally referred to as the Southwest. In 1943, the conference program was expanded to include air transport, private flying and the military. This year, the all-inclusive nature of the event gives it national and even international significance.

Aviation legislation is on the minds of all persons interested in or connected with any branch of the industry. Everyone realizes decisions must be made as regards what kind of laws aviation will operate under in the future. Sufficient warning has been given that there will be a new Federal code and in many States, completely new or revised aviation legislation. The true aviation leaders now realize they cannot escape the responsibility ahead of them. It is this realization that focuses the spotlight of national attention on the resolutions covering legislation which are bound to issue from the 1944 conferences at College Station. Hence these sessions no doubt will be the predominant back-drop of the timely meetings that will cover all major subjects affecting American aviation enterprise.

This is not to say that other momentous problems of wartime aviation will be neglected to give legislation first attention. On the contrary the customary manufacturing sessions on industrial training, contracting, production, personnel and their related subjects take a prominent place on the program as previously. There will be separate sessions on upgrading and supervisor training, procurement and training of returned veterans, government agency training, selective service, labor relations, "human" engineering and labor pools. Under contracting and production, sessions have been organized to cover shortages and substitutes, contract and sub-contract termination, recent improved production methods, plastics, wood and synthetics and postwar conversion problems. A brilliant array of specialists in their respective fields have already accepted discussion leader appointments for these sessions.

DIRECTS AIRCRAFT EXPOSITION

Wilson Germany, well known Texas pilot and oil executive, is the general chairman of the first annual Southwest Aircraft and Accessories Exposition, opening in Dallas April 27. The event will be visited by the Aviation Writers Association on April 30, in advance of the Wartime Planning Conference at A. & M. College, May 1-3.

Scheduled air transportation, both domestic and international, will be expanded this year into new sessions, covering planned route expansion, classified operations, problems and potentialities of air cargo operations, transition problems from war to peacetime operations and international air policy.

Non-scheduled civil aviation will receive even greater attention than in previous conferences. Attendance this year will be accelerated by the first annual Southwest Aircraft and Accessories Exposition to be held in Dallas the three days preceding the Conference, April 28, 29 and 30. Manufacturers' representatives and fixed-base operators from over the nation, who are supporting the Exposition, plan to proceed to College Station and attend the special sessions at A. & M. given over to discussion of their own vital problems. Recent termination of government flight contracts and the gradual tapering off of the Army and Navy utilization of commercial operations emphasize the importance of the meetings planned for non-scheduled civil aviation. Here, too, the subject of aviation legislation and regulation will attract the serious attention of the nation's private flyers, personal aircraft manufacturers and fixed-base operators. Texas A. & M.'s super airport located on the College campus will facilitate attendance of those who fly their own airplanes.

Considerable national significance has been given the Conference this year by the decision of the Aviation Writers' Association to hold their 1944 convention in conjunction with the event. The journalists will arrive in Dallas on Sunday, April 30, for a visit to the Southwest Aircraft and Accessories Exposition and proceed to College Station the following day. This marks the first occasion for the AWA to meet in annual convention outside the East. While in Texas, the writers will be guests of the Army Air Forces, The Navy, and the aviation industry.

All correspondence regarding the Wartime Planning Conference, including room reservations, should be directed to Howard W. Barlow, Aeronautical Engineering Dept., Texas A. & M. College, College Station, Texas.

VATION *April 27 - May 3*

Army-Navy exhibit will dominate Dallas Exposition, opening event of Texas Aviation Week. The non-profit aircraft and accessories display will be open to the public as a free educational feature.

HAVE you ever attended an aircraft exposition that was free to the public and also to the exhibitors? If not, you will have that rare opportunity in Dallas April 28, 29 and 30 on occasion of the Southwest Aircraft and Accessories Exposition.

The Exposition will be the opening feature of Texas' annual aviation week and will be supported not only by the Army, Navy and CAA with timely aviation war exhibits, including captured enemy aircraft, but also by three score well-known aircraft, engine and equipment manufacturers who feel the half-million population of the Dallas-Fort Worth defense area will profit from such an enterprise, geared as it is to the war effort.

Sponsored by the Dallas Chamber of Commerce, executives of the exposition also believe that the event will contribute much to the maintenance of trade ties throughout the war, a highly desirable end to achieve because of the curtailment of civil and commercial aviation activities. By keeping these trade ties active, the manifold problems of the postwar transition period should be alleviated. In addition, cancellation of flight training contracts and other threatened restrictions of vital aviation operations necessitates serious conference study of these new problems and the Exposition committee plans to provide the facilities and the opportunity for such conferences.

Logically, the Army and Navy exhibit will predominate the display. An Axis "Junk Heap", consisting of damaged parts from enemy aircraft shot down in battle, and complete enemy aircraft captured on various combat fields of operation, are expected to have wide public appeal. The Air Forces will display a well known American fighter plane and a trainer, while the Navy will show one of its latest model fighters and a primary trainer. The Navy exhibit will also include a Link Trainer operated by Waves, while the Army expects to demonstrate parachute packing and repair as carried on by Air Wacs. These features are expected to result in new women recruits for both services.

Watching a Mustang as it speeds over the Texas plants of North American Aviation, Inc., is Coke R. Stevenson, Governor of Texas (right) and Harold F. Schwedes, North American factory manager. The Mustang will be on exhibit at the Dallas Exposition, April 27-30.

An especially interesting educational feature will be sponsored by the Civil Aeronautics Administration, showing some of the latest technical devices used in various operations, including air traffic control and student instruction methods.

A tentative list of exhibitors includes the following companies in addition to the Army, Navy and CAA:

Aero Products Division; Air Communications, Inc.; B-G Corporation; Butler Manufacturing Co.; Cambridge Instrument Company; Continental Motors Corp.; Chicago & Southern Air Lines, Inc.; Engineering & Research Corp. (Ercoupe); Fahlin Manufacturing Company; Firestone Aircraft Company; Fram Corporation; Freedman-Burnham Engineering Corp.

Goodyear Tire & Rubber Co.; Guiberson Diesel Engine Corp.; Hamilton Standard Propellers; Howard Aircraft Corp.; Humble Oil & Refining Company; Interstate Aircraft and Engineering Corp.; Kollsman Instrument Division; G. B. Lewis Company; Lycoming Division; Magnaflux Corp.; Magnolia Petroleum Company; North American Aviation, Inc.; Pratt & Whitney; Ranger Aircraft Engines; Sensenich Brothers, Inc.; Shell Oil Company; Simplified Flight Calculator Company. The Texas Company; The Turco Company, Inc.; Warner Aircraft Corp.; and the Wright Aeronautical Corporation.

Prospective exhibitors should write or wire George W. Jalonick, III, care of Southwest Airmotive Company, Love Field, Dallas. All othr correspondence, including requests for hotel reservations, should be directed to the Exposition, care of the Dallas Chamber of Commerce, Dallas, Texas.

Mayor Woodall Rodgers of Dallas has been appointed honorary chairman of the event. Steadham Acker of Birmingham, Alabama, is Director, and Wilson Germany, Dallas oil executive and private pilot, is General Chairman.

Major Miguel Ravinovitch and Capt. Maximilian Garavito of the Guiberson Corporation are heading up a committee for Latin American participation. They have assurance of representation from 14 republics south of the border.

A Preface to POSTWAR PLANNING

PART III—International Aviation Policy

By GEORGE E. HADDAWAY

The forthcoming international conferences on global aviation throw the spotlight on the fact that the United States does not have a sound international aviation policy. Congress, the State Department and the CAB are interested but lack central direction and unified effort.

IN the two previous installments of this series, we considered the chaotic condition of Federal and State legislation affecting every branch of aeronautics, particularly on the domestic scene. The rapid technical advances in aviation and the unprecedented utilization of air services brought about by the exigencies of total war have intensified the fact that official thinking has been and continues to be antediluvian and that the present lack of a vigorous national aviation policy actually jeopardizes the gallant hope for American air supremacy in the postwar world.

Just as confused thinking, uninspired legislation and division of control by Federal agencies have contributed to instability on the home front, so have the same factors precluded the possibility for development of a realistic policy on international air transport. The fact of the matter is we have no policy—realistic or otherwise.

Non-Aviation Delegates Named

For quite some time now there has been talk around official Washington about approaching discussion of global air transport among representatives of the United Nations. During March, as the dates for the conferences drew nearer, it became apparent just who would represent the United States in these so-called preliminary discussions. Among them are Joseph C. Grew, former Ambassador to Japan and now a special assistant to Secretary of State Cordell Hull; Adolph A. Berle, assistant Secretary of State; William A. M. Burden, Assistant Secretary of Commerce; and Welch Pogue, chairman of the Civil Aeronautics Board.

Berle has behind him some relatively minor experience in aviation matters but the appointment of ex-Ambassador Grew, who has had none, contributes to the general confusion surrounding the forthcoming conferences on what is universally agreed to be one of if not the most important of all the problems facing the postwar planners. Just what Grew can contribute to American aeronautical and governmental interests remains a mystery, while his appointment reimpresses us as typically New Deal because the Administration is forever appointing to important posts people whose previous experiences and past performances simply don't adapt them for the specific job at hand.

Another mystery left unsolved is why in the name of heaven Congressional committees and other Federal agencies deeply concerned with the subject of international air transportation have not pushed some comprehensive and all-inclusive discussions among the accredited experts right here in the United States. Such considerations, had they been promulgated and attended by representatives of all the commercial companies and Federal departments vitally interested in the subject, would have accomplished more than any other one factor in developing at least the fundamentals of a policy potentially capable of protecting this nation's stake in postwar trans-ocean airways. It appears now that our spokesmen in the forthcoming foreign aviation conferences will be in no position to deliver definite proposals which represent U. S. policy. Under these circumstances it would be ridiculous for the American spokesmen to be given the power to make any kind of commitments.

If you don't believe the questions surrounding international air transport are complex and of far-reaching significance, consider some of these that have been posed but not yet pondered sufficiently to provide any clues to our national policy:

1. What type of agency or agencies will we provide to engage in foreign air transport? A "chosen instrument" (i.e. Pan American Airways), several closely regulated commercial chosen instruments for regional monopolies, or a federally-subsidized combine of all the existing domestic carriers as proposed by Senator Pat McCarran in his proposed Act of 1944? (See page 42.)

2. Shall our government pursue a policy of "freedom of the air" and if so, just what constitutes "free air"? Does it imply we must give up sovereignty of our own airspace if an international aviation agreement be reached at the peace table? And what about "freedom of innocent passage"?

3. Should operating rights into foreign nations be negotiated between this nation and foreign countries individually or should an international aviation control body, guided by the United Nations, determine and officially assign such operating rights?

Facts, Nots Fears, Needed

These and kindred problems are the subject of an agenda for postwar planning released last month by the Senate Commerce Committee's aviation subcommittee, whose chairman is Senator Bennett Champ Clark of Missouri. In the report, the committee merely states the problems, poses the various alternatives but makes no recommendations. It is, however, a significant document and one that should be read and kept on file by everyone interested in the subject.

The most unfortunate and frustrating aspect of this groping about for an international air policy is the realization that the United States is getting thin-blooded about international affairs. There seems to be an element of fear and vacillation in everything the State Department undertakes. Perhaps the fundamental reason why we have not as yet developed an international air policy is because of the

(Continued on page 52)

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Troop Carrier Command,
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Thus with unlimited resources,
the mailed fist of war holds a test tube
which is so perfecting air travel
that come postwar you can wing your way
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with no greater concern than
you now board a streetcar.

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THE Sky's the Limit

BY BILL GREEN

Cockpit trouble. . . . It's simple to fly safely. . . . But the regulations need streamlining. . . . Some suggestions and an invitation. . . . Texas Aviation Conference is a "Must."

Pilots Still Killing Selves

WE have just finished reading some of the official reports of the Civil Aeronautics Board on accidents involving various aircraft, and it is obvious to us once more that nearly all airplane *accidents* are the result of faulty piloting technique. In most cases, it appears that even good pilots frequently forget that airplanes can be very easily stalled, especially with power off, and they are tearing up airplanes and killing themselves on that account. For your information, we would like to include herewith a very normal type of report showing that pilots who have sufficient time in the air and sufficiently good aircraft to take care of themselves still apparently haven't learned the fundamentals of flying.

"File No. 2772-43

"REPORT OF THE CIVIL AERONAUTICS BOARD

"on the

"Investigation of an Accident Involving Aircraft During a Local Pleasure Flight

"Pilot ——— was seriously injured and his passenger, ———, received minor injuries in an accident which occurred ——— about 9:00 p. m. on July 6, 1943. ——— held a private pilot certificate with a single-engine land, 0-80 h.p. rating. He had accumulated approximately 117 hours of solo flight time, all in the type of aircraft involved. ——— was not certificated as an airman. The aircraft, a ———, owned by ——— was demolished.

"Pilot ——— received clearance for a local pleasure flight and with ——— took off ——— about 8:45 p. m. They headed directly toward ———, where both the pilot and passenger resided, approximately eleven miles southeast of the airport. Flying very low over a valley in the vicinity of ———, the aircraft was observed by one witness to zoom over a house, continue its climb and strike tree tops on a ridge a short distance beyond. The aircraft was stalled and crashed into the adjacent ridge on the right wing and right landing gear. It came to rest on the bottom of the fuselage about 150 yards from the point of first impact with the trees.

"Examination of the wreckage indicated conclusively that the plane had struck the trees, as leaves and branches were still attached to its fittings. There was no evidence of failure of any part of the aircraft prior to its collision with the trees, which had so retarded the speed of the airplane that it mushed to the ground. The pilot stated that after striking the trees he could not use the engine because of severe vibrations. This fact, together with the manner in which the wooden propeller was damaged, indicated that the propeller was undoubtedly broken upon impact with the trees. The pilot also stated that he was flying at an altitude of 400 to 500 feet when he was caught in a down draft and was unable to gain altitude or maintain control. He insisted that he took off at 8:30 p. m. (nine minutes before sunset) and that the accident occurred at 8:45 p. m. However, none of the evidence substantiates his description of events. Civil Air Regulations require that navigation lights be lighted on all aircraft after sunset and the subject aircraft was not so equipped. Official sunset on the subject date was at 8:39 p. m. However, neither the degree of daylight remaining nor the weather was considered a contributing factor to the accident. Dual controls were installed and operative.

"On February 16, 1944, the Board revoked ———'s private pilot certificate because of his carelessness and disregard for the lives and safety of others and his disregard for the Civil Air Regulations.

"This accident was the result of the pilot's reckless flying at a dangerously low altitude.

"BY THE BOARD

"/s/ FRED A. TOOMBS, *Secretary.*"

Strange as it may seem, the only reason that an airplane can stay in the air is by virtue of the airspeed past the wings, with the resultant upward lift caused by that airstream against the angle of incidence of the wing. That's what makes windmills go, and if there is no wind, the mill doesn't turn. If there is no wind past an airplane wing, or at least if there is not more than the minimum required to sustain it, the airplane must spin and fall.

This is not a special case. Investigation after investigation reveals identically the same cause. Even two commercial pilots, with all sorts of instrument ratings and everything else, in circling an airport to look over the field, circled at part-throttle, apparently made a downwind turn, fell off in a spin, were both killed and the airplane demolished. Expert witnesses on the ground observed them, so there was no argument that something happened to the airplane. They just stalled in and killed themselves.

Some airplanes stall at different speeds and with different characteristics than other airplanes. There is usually someone with sufficient experience and skill around most airports who could explain thoroughly the characteristics of most of the usual type airplanes. It would pay every pilot, young or old, to do some studying about this. Most every book on flying takes up with the matter of stalls, the whys and wherefores, and it is unquestionably a fact that this is just one more of the natural laws that cannot be evaded or broken without serious consequences.

Another thing that seems to stick out in about half or more of all of the accidents is that the pilot and passenger were playing. If a fellow is going to take an airplane and go over and zoom his house, which is against the law anyway, then stall his airplane trying to get over a hill covered with tall trees, maybe there

(Continued on page 48)

BEST COPY A

YOU SAVE 4 WAYS . . .

REYNOLDS SKILLED WORKMEN do your fabricating for you. All that you need to do is furnish blueprints or templates, Reynolds takes care of the rest. Finished formed parts arrive at your plant ready for assembly, saving you valuable time.

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THOUSANDS OF FREIGHT CARS like this one being unloaded can carry other war materials when plane manufacturers use Reynolds prefabricated plane parts. This Reynolds service does away with needless cross-shipping and handling of scrap.

ELIMINATE THESE HUGE SCRAP ACCUMULATIONS. Aircraft parts fabrication normally generates an average of 30% scrap. The Reynolds Plan keeps this carefully segregated metal at the aluminum source, where it can be put back to work without delay.

with REYNOLDS Prefabricated Plane Parts

ANY production method that can save airplane manpower today certainly deserves serious consideration. Add to this the saving of plant space, transportation and scrap handling and you have a combination that's unequalled in speeding plane production.

Just such a method is Reynolds Prefabricated Plane Parts Service.

It saves manpower because you receive finished aluminum parts ready for immediate assembly.

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The first aluminum manufacturer to supply finished plane parts from aluminum sheet 3 years ago, Reynolds is, today, supplying finished parts to every leading manufacturer of combat planes.

In that time Reynolds has built up the organization of skilled workers needed to make such a plan smooth-running, accurate, practical. This forward thinking and co-operative planning has pushed Reynolds ahead to where its operations now cover 40 plants in 14 states, with its own source of Bauxite from which aluminum is made.

This urge to "go places" is what keeps Reynolds men on a continual search for new ways to make aluminum better and easier, cheaper to use.

Take advantage of Reynolds' resources, equipment and engineering skill. For any problem you may have in working with aluminum, no matter what it may be, you'll find Reynolds prepared and able to handle it in the most practical way. Reynolds Metals Company, Aluminum Div., Louisville, Ky.

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McCARRAN'S NEW AERONAUTICS BILL

Designated as Senate Bill 1790, the "Civil Aeronautics Act of 1944" would re-establish an independent Civil Aeronautics Authority and an independent Air Safety Board, create a billion-dollar government subsidized "chosen instrument" to monopolize international air transportation, and leave certain States' Rights intact for the regulations of intrastate traffic.

THE Federal aviation bill everyone has been waiting anxiously for since the Lea Bill "folded its tent like the Arabs" was introduced in the Senate on March 20. A far cry from its airline-sponsored predecessor, Senator McCarran's Civil Aeronautics Act of 1944 is proposed as an entirely new law and not an amendment to the 1938 Act, as was the hotly contested Lea Bill.

There are two provisions in the new Bill that in all probability will cause widespread debate and argument, the first being a provision for the creation of a federally chartered private corporation with potential working capital in excess of one billion dollars, to be known as the All American Flag Line. This corporation will be composed of air carriers now holding certificates under the 1938 Civil Aeronautics Act, except air carriers whose operations are wholly within the Territory of Alaska. The second major provision of a provocative nature is the specific recognition of States' rights particularly in control of intrastate air carriers and intrastate air contractors. Elaborating on his stand, McCarran stated unequivocably: "With respect to these two types of operations, States can exercise all the traditional powers which they have exercised in the public utility field. The bill covers this idea specifically both by definition and by declaration of policy, so that the intent of Congress not to interfere with States' rights will be clear."

Airline President Opposes Monopoly

Vigorous opposition to Senator McCarran's proposal to establish a billion-dollar air combine for postwar American international aviation has been voiced by Carleton Putnam, president of Chicago and Southern Air Lines. Assailing the basic idea of the "All American Flag Line", Putnam declared his company stands with a majority of the nation's air lines in opposition to the bill. He referred to the proposal as indicative of "the ever-growing monopolistic trend of American aviation."

The great new field of postwar aviation must be kept open to the American people under the same standards of regulated competition that have inspired the growth of America's domestic air transport industry since its beginning, Mr. Putnam declared. There is no reason why, he added, the existing CAB cannot control the development of a balanced competitive international pattern, just as it has controlled the development of a domestic pattern. In his opinion there is not a single significant objective that a combine can attain that cannot be equally well attained by a properly regulated distribution of routes among a variety of carriers.

Highlights of Measure

Other major provisions of the McCarran Bill are:

1. A Civil Aeronautics Authority composed of seven members is created as an independent agency, and the office of the Administration is abolished as is the Civil Aeronautics Board. The Bill takes all civil aviation functions out of the Department of Commerce and vests the Federal Government's civil aviation activities and regulations into the one new agency.

2. An independent Air Safety Board would be reinstated with the sole function of investigating accidents, and making recommendations looking toward prevention of such accidents in the future.

3. A new type of certificate of public convenience and necessity, known as an Experimental Certificate, to be issued without the requirement of any proof, other than of ability, including financial responsibility, to operate new lines and to comply with necessary safety regulations.

4. A "Bill of Rights" for the private flyers who are given specific assurance against interference by the Federal regulatory body which is created under the Act, through a new section which prohibits the application to them of any provisions of the Act other than those relating to safety. Private owners are specifically given the right to perform mechanical work on their own planes without securing a separate certificate from the CAA for that type of work.

5. A national airport survey to be established and to be kept current at all times as the foundation for necessary legislation in this field.

6. Co-operation between Federal, State and Municipal governments in formulating and carrying out a nation-wide program for the clearing and protection of aerial approaches to airports. Zoning to be a local function but Federal planning, experience and funds would be provided.

Obvious Through Absence

Attention should be called to matters not covered in the new Bill which have been included in previous legislation or proposed legislation.

No provision is included in the Bill for a study of the possibilities of postwar aviation. In McCarran's opinion this is not a subject for permanent legislation, but should be covered by a separate bill or joint resolution.

The Bill makes no provision for a study of the carriage of all first class mail by aircraft, which, like the study

(Continued on page 52)

WHEN "ELMER" TAKES OVER

It's a tense moment when, with the bomber over the target, "Elmer" the automatic pilot, takes over. The bomb bays are opened . . . and in split second timing a load of destruction is hurled to the earth with uncanny accuracy.

The success of the bomber's mission and its safe return demand precision of both men and machines. Every man's mind must be alert; every mechanism must function perfectly. There can be no lag or drag.

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HUMBLE OIL & REFINING COMPANY

The Navy's Air War

From wing racks like these the Navy loosed destruction on Wake, thanks to 2,400-mile range of slow but sure PB2Y (Consolidated Vultee photo).

By COURTENAY MOORE

Recent carrier-force operations in the Pacific have been viewed in Washington as striking evidence of the Navy's growing reliance in air power. Admiral Chester Nimitz emphasized recently that his carriers are aiming at the establishment of bases on the China coast. Another sign of increased Navy trust in aviation was the appointment of Vice Admiral John H. Towers, one of the Navy's first airmen whose entire career has been spent in aviation, to the post of deputy commander in chief of the Pacific under Admiral Nimitz.

Complementing the Navy's plan of massing tremendous carrier forces in the Pacific offensive is its employment of island-based bombers. The fleet's air wings have sent wave after wave of land-based two- and four-engined planes against Japanese targets in recent weeks. Lockheed Venturas have struck again and again from the Aleutians against Jap bases in the Kuriles. Navy versions of the Army's Consolidated Vultee Liberators have ranged the mid-Pacific far and wide, dumping heavy loads of explosives on Japanese island strongholds in co-ordination with the 7th AAF operations.

An interesting phase of the Navy's Pacific offensive has been the use of its four-engined Consolidated Coronado flying boats as strategic bombers. Their first operations in this role came during the invasion of the Marshall Islands. At first there were no facilities for land-based heavy bombers. But rather than delay its fast-moving air offensive, the Navy based its huge Coronados in the Marshalls' sheltered lagoons, and on January 31 a squadron of the flying boats surprised Wake Island Japs with a 2,400-mile mission, smashing installations with more than twenty tons of bombs. Within a short time the same Coronados raided distant Wake eight times without losing a plane. These were the first attacks on Wake since carrier-based planes had struck on October 5-6, 1943. The Coronado is considered too slow and not maneuverable enough for combat flying but it paid handsome dividends against Wake.

Much significance is seen in the Navy's efforts to combine island-based heavy bombers with its carrier planes as the U. S. spearhead drives deeper and deeper toward China. The Philippines, Admiral Nimitz has indicated, will play an important role in this strategy.

Great concentrations of air power have been employed in recent island offensives. Preparatory to the invasion of the Gilberts, those Jap bases were pounded in a four-day air bombardment. Later, when the Marshalls became the target for invasion, they were bombed intermittently for a month and with regular and deadly persistence for another month preparatory to the actual landings.

Huge Coronado operates from lagoons. They frequently shuttle Marine combat teams from atoll to atoll (U. S. Navy photo).

SPEED TO WIN

(Continued from page 27)

Closely associated with the contribution of the National Air Races to the advancement of aeronautics are Cliff W. Henderson (left), managing director of the events, and Maurice Roddy, author of this article. One of America's outstanding aviation writers, jovial Roddy is aviation editor of the Chicago Times Syndicate and authority on the races.

and final lap, Roscoe Turner was seven miles ahead when his engine blew up and forced him to a masterful dead-stick landing. Booming into the microphone, Turner said, "Everybody is saying tough luck. I don't think so. When you can walk away from that kind of an airplane, I think that's good luck. I think I'm lucky as hell!"

By clocking a new record of 264.26 mph., Detroyat won the 1936 classic, taking the Thompson Trophy overseas for the first time. Diving from nowhere, Rudy Kling, Lemont, Ill., won the 1937 Thompson by a scant 20 feet. His Folkerts Special averaged 256.91 mph, although his six-cylinder inverted Menasco Super Buccaneer was only rated at 290 horsepower. He demonstrated the efficiency of strictly stock American-built aircraft engine of the in-line type. In 1938, Turner became the only pilot ever to win the Thompson twice when he set the dazzling speed of 283.41 mph. which was a new course record. Turner repeated in 1939 which was the last year the Thompson was flown.

Frequently, opinion has been expressed that the national air races should be revived as a great postwar program. With aviation making a "neighborhood out of the world", what could be more appropriate than a huge "Olympics of the Air?" This annual international competition could again be the proving grounds for the new wings with which the world of tomorrow will blaze the space routes to new and unexplored horizons. ★

Plane vs. Truck

Military planes supplying China over the Himalayas now haul as much as ninety Burma Road trucks used to carry.

RYAN-STANDARD cabin plane; pioneer passenger airliner.

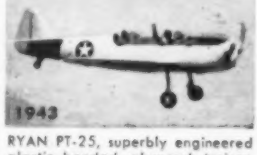
RYAN BROUGHAM, widely used commercially and for many famous flights.

RYAN S-C, cabin plane for private-owner use, featured all-metal construction.

RYAN YO-51 "Dragonfly", Army observation plane with unique performance ability.

RYAN NR-1, low-wing trainer used for formation flight instruction by Navy.

RYAN ST3-S, seaplane trainer of same series as Army's PT-22.



RYAN PT-25, superbly engineered plastic-bonded plywood trainer.

Wings Across the Sea

THAT FREEDOM MAY NOT DIE

Half surrounding Japan's ill-won new territories are Chinese, Indian and Australian air bases. In these countries are thousands of potentially fine pilots, as eager as their American brothers in arms to fight the common enemy.

HELPING ARM OUR ALLIES

But *grounded* valor is of little avail against Japanese air power. Only modern training and modern equipment can turn this eagerness into effective military use.

Ryan is proud of its contribution in Asia and Australia toward this end. Widely used for training military pilots for the U. S. Army Air Forces, Ryan planes were in China and the Netherlands East Indies in training operations before the war. Now Ryan planes are doing their full share in important military assignments for China and in Australia and India. Of course, details of these military assignments cannot now be published.

TO STRIKE HARDER BLOWS

In addition to other vital war work, Ryan activities now include the engineering development and manufacture of advanced type combatant airplanes and important assemblies for the armed services. Into these is going knowledge that will make Ryan peacetime planes and other products safer, more useful and more economical.

RYAN

Rely on Ryan to Build Well

RYAN BUILDS WELL

Ryan construction, proven in aviation's pioneer days, now proven in war, will tomorrow produce safer, more useful peacetime aircraft.

RYAN TRAINS WELL

Ryan School of Aeronautics, famous peacetime air school, now training fine U.S. Army pilots, follows one creed: **Thoroughness.**

RYAN PLANS WELL

Modern engineering + **flying experience.** Typical result: Ryan exhaust manifold systems are now used on the finest planes of other manufacturers.

RYAN AERONAUTICAL COMPANY, SAN DIEGO — MEMBER, AIRCRAFT WAR PRODUCTION COUNCIL, INC.

Ryan Products: Army PT-22s; Navy NR-1s; Army PT-25s; S-T Commercial and Military Trainers; Exhaust Manifold Systems and Bomber Assemblies.

WHAT NEXT?

(Continued from page 29)

dark days. No one denied that it had done a good job. It had. Thousands of young men who had obtained their indoctrination in flying at the controls of the lightly-powered kites used in the program had gone on to make commendable showings in the AAF. But for reasons of its own the Army got a bad taste in its mouth at mention of CPT. So far as the Army was concerned, CPT could languish and die and there would be no mourners.

But pet projects of strong government departments do not fold up that easily. Bureaucracy is endowed with perpetual motion. Two groups got behind the ailing CPT. One consisted of the contractors who, since 1939, had become more and more dependent on government money for their livelihood. Their anxiety was understandable. Their normal commercial business was gone. They had prodigious amounts of folding money invested in their equipment. If they were not to go into bankruptcy, they had to have succor, and the great gray building hard by Washington's Pennsylvania Avenue, between Fourteenth and Fifteenth Sts., looked like their only source of revenue. Willingly or not, the school operators had sold their birthright, and the pottage was sour.

The other group behind the CPT consisted of some innocents who were drawn into the Department of Commerce as a sort of political prop for a project that — the Army made it pretty clear — had outlived its usefulness.

So the CPT was refurbished as the War Training Service. And now something else happened. WTS prevailed upon the Civil Aeronautics Administration to prevail upon the War Production Board to freeze all single-engine aircraft in the hands of their current owners. A general limitations order was issued. WTS needed airplanes because it had a new scheme — it was going to buy up a thousand light planes for its pilot training scheme and farm them out to the school operators. WTS wanted the airplanes frozen so it would know where to find them. The contractors could liquidate part of their investment, they would still be in business, and the CAA still would have its CPT.

It all happened that way. The CAP, of couse, had a lot of its airplanes taken away. The operating table was jiggled but not disastrously. A loose union with the Army was effected anyway. The move by the WTS did, however, have one melancholy result. A man usually doesn't give a tinker's damn about equipment that doesn't belong to him. Some school operators let the WTS-owned planes go to ruin. Maintenance in some instances got so poor that airplanes stacked up hither and yon, their engines silent, that otherwise could have been in the service of the war effort in the hands of CAP pilots.

Therein should lie a lesson. With its multiple services for the Army and its Cadet training program, an independent and virile CAP continues to be one of the war's wonders. Nobody in the CAP gets a salary except for the administrative officers in Army uniform. Everybody in the CAP has lost his shirt financially. Yet the organization morale-wise is as strong today, if not stronger, than it was when it was formed a week before Pearl Harbor.

New "League" Promising

A happy augury for the future of the CAP was the announcement by Thomas Beck that the League will raise its funds through small membership fees. That would indicate a desire on the part of the League's founders to abjure government financial support. The end-product of government support of CPT was good only in part. Thousands of trainees showed up for their classes, as hundreds of school operators will testify, in anything but a receptive mental attitude. They were getting something for nothing and they valued it lightly. Those same thousands showed little interest in flying once they obtained their airmen certificates.

"It is hoped," said Beck, "that through its nationwide activities, the League will provide a great backlog of trained aviation personnel, not only to provide an adequate reserve in this war but to serve America in the future — in preventing war and in creating work and prosperity.

"Under the direction of the CAP the educational program has already proved of great value in preparing young men for the military services. With this in mind, one object of the League is to protect America against future military aggression by maintaining superiority in the air.

"In addition, the program has another and primary function. It is hoped that the body of trained youngsters will be the nucleus around which America will develop and build civilian and commercial aviation as a postwar service both to our country and to the aviation industry."

Job for the Future

In the postwar period the CAP can, if it chooses, help unshackle aviation from the constricting government control that, up to the time America entered the war, had laid a heavy hand on private flying for a decade. Noncommercial, non-military flying in the United States grew, it is safe to say, in spite of regulation by government. Up until CPT it grew, furthermore, without financial aid even in so vital an aspect as design research. Improvements in lightplane design have come from the private manufacturer's wind tunnel, not from those of government agencies.

In the the postwar period two trends of thought are bound to be abroad in the land. The one, embracing bureaucracy, will insist that the growth of aviation depends on outright government financial support. Its disciples will argue that national defense needs require a continuing subsidy from the federal treasury. The other, springing from the grass roots, will insist that federal paternalism can lead only to absolute federal control. Federal control would mean not a healthy growth of aviation but an artificial growth. It would mean a feast or a famine for private flying, depending on the whims and tempers of succeeding national administrations and the political exigencies developing at either or both ends of Pennsylvania Avenue.

In the CAP lie the seeds of America's peacetime airpower. The CAP League can well ponder the nature of the toddling giant it has chosen to support.

Five-State CAP "Clinic" Set for May 1-3 at Texas A. & M.

Lt. Col. D. Harold Byrd, commanding the Texas Wing, announced plans last month for a regional conference May 1-3 of all CAP training officers in the states of Texas, Oklahoma, Louisiana, Arkansas and New Mexico. Lt. Col. Earle L. Johnson, the national commander, will attend, as will Army Air Forces training liaison officers. The program will be conducted at College Station, Texas, in conjunction with the Third Annual Texas Aviation Week Wartime Planning Conference sponsored jointly by the aeronautical engineering department of Texas A. & M. College and SOUTHERN FLIGHT. Airport facilities at the college are ample to handle any type of airplane and include 5,000-ft. concrete runways.

One of the many inspections of precision-built E. L. I. Landing Gear Shock Strut Assemblies.

E.L.I. during the past twelve years, working to exacting precision standards has contributed many instruments and services in World-Wide use . . . experience that today is enabling us to contribute our share toward Victory, building aviation and other military equipment, ranging from landing gear shock strut assemblies to pressure reducer valves for automatic pilots and electrical detecting and measuring instruments.

Linked with our complete facilities for precision manufacture on a production basis, E. L. I. maintains a large staff of engineers with seasoned experience in many fields, whose services are available on a very flexible basis as desired • Consulting • Engineering • Design and Development Work • Testing and Manufacture, or any part thereof. Customarily working on a cost-plus or contract basis at reasonable rates, we welcome your inquiries.

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EQUIPMENT IN WORLD-WIDE USE

SKY'S THE LIMIT

(Continued from page 40)

is no way you can keep him from doing it. However, it serves no useful purpose, destroys airplanes, gets pilot's licenses revoked; sometimes it injures innocent passengers, and scares the wits out of lots of people. It is of no help to the individual, to the passenger, to the aircraft business, or to the general public. Everyone should ostracize, or otherwise point the finger of scorn, at any pilot who deliberately, time after time, refuses to abide by the rules of ordinary safety and intelligence. Such pilots are useless and probably will nullify any good they do by bringing some law abiding citizen to an untimely end.

The pilot who plays around with an airplane is like the damphool who, in days long ago (and possibly to some extent today), went at high speed down the road turning his steering wheel right and left and thereby careening back and forth across the road. The same idiot also likes to turn corners on two wheels, one of them being the steering wheel. Such a guy in an airplane is just an accident going someplace to happen. From the reports we read, we think such guys probably are responsible for at least half of all aircraft accidents.

Familiarity Breeds Safety

We have always felt that an airplane is like a watch, or sewing machine, or some other kind of an instrument. It is made to use for one purpose and nothing else. A watch is made to tell time, a sewing machine is made to sew, an airplane is made to fly straight and level from one place to another without any fooling around. Of course, people have to be taught to tell time, people have to be taught to run a sewing machine and people have to be taught to fly. In teaching them to fly, they are taught many things supposedly that they should not ordinarily practice at all because they are taught those things only in order that they may know what to do in the event they find themselves inadvertently in such shape.

There are no commercial airplanes that were designed for much more than the normal take-off, landing, and flight in ordinary cruising speed, with a reasonable margin of safety. Lots of people appear to think that an airplane flying in soft, clean air, has no strains on it at all. What do you suppose keeps it up there? Gravity hasn't been neutralized. The forces that hold an airplane in the air are every bit as strong as the forces that keep it from sticking into the ground, when parked. In many cases, they are several times as great. In other words, an airplane sitting on the ground has its whole weight resting upon the three wheels. When an airplane is in the air in level flight at normal cruising, it has its whole weight resting upon the wings and tail surfaces with the weight distributed over each square foot of surface. Then it has other forces caused by the resistance or drag from the air, which is a force acting from the front of the airplane back toward the tail. It frequently has forces on the fuselage and all these forces are increased and accentuated with any maneuver at ordinary or higher than cruising speed. It is possible in a dive to pull out with more than nine times the weight of the airplane and occupants acting upon the plane. If most of you would keep in mind that most commercial airplanes will fail at some point or another at between five or six times the normal forces then it is obvious that you can quite easily expect to break the wings clear off the airplane if you zoom down, get up a good speed and pull back too sharply.

Most people also do not seem to realize that in making sharp or vertical banks one way or another, they are

(Continued on page 54)

Airmen's Calendar

April 24—Joint Meeting, East and West Coast Aircraft War Production Councils, Los Angeles.

April 27—National Light Aircraft Meeting, Institute of the Aeronautical Sciences, Detroit, Michigan.

April 28-May 3—Aviation Writers Association Meeting, April 28-29 at Dayton, Ohio, and April 30-May 3 at Dallas and College Station, Texas.

April 28, 29, 30—Southwest Aircraft and Accessories Exposition, Chamber of Commerce, Dallas, Texas.

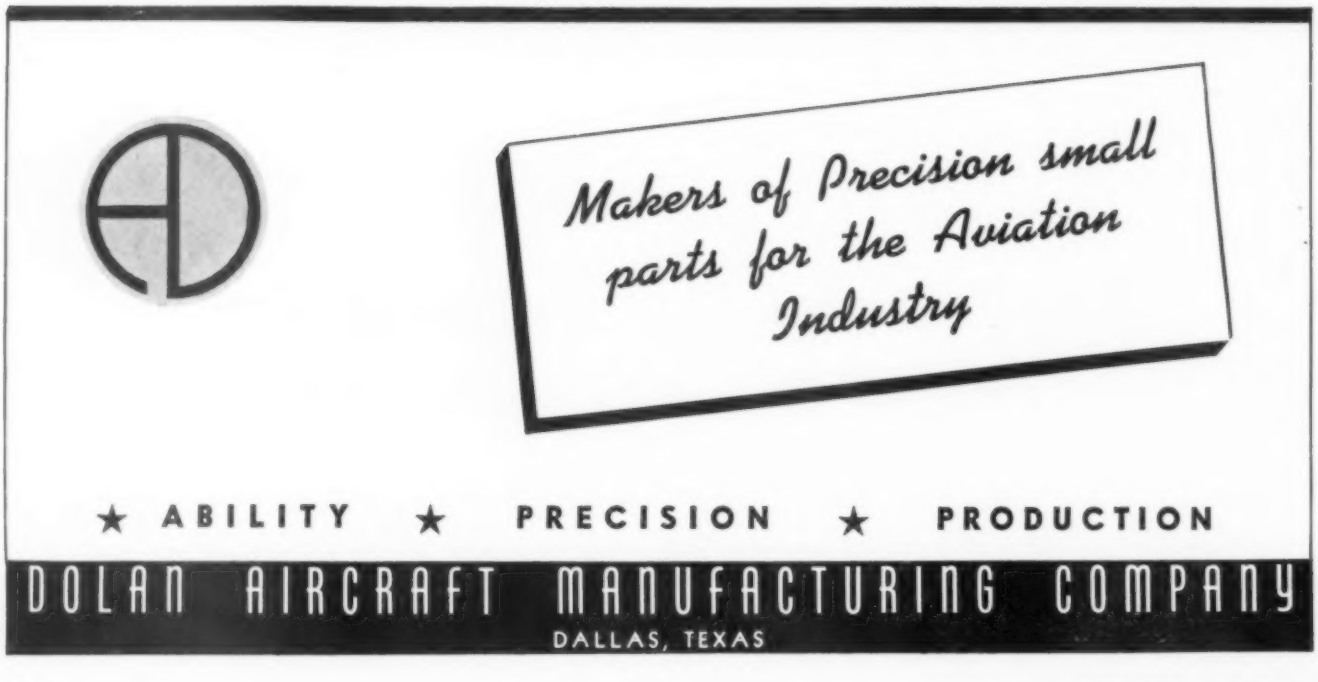
May 1, 2, 3—Third Annual Wartime Planning Conference, A. & M. College of Texas, College Station, Texas.

May 17-18—SAE National Diesel-Fuels & Lubricants Meeting, Hotel Knickerbocker, Chicago, Ill.

June 5-7—SAE National War Materiel Meeting, Book-Cadillac Hotel, Detroit, Mich.

June 28-29—SAE National Transportation & Maintenance Meeting, The Bellevue-Stratford, Philadelphia, Pa.

August 24-25—SAE National West Coast Transportation & Maintenance Meeting, Multnomah Hotel, Portland, Ore.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★ ABILITY ★ PRECISION ★ PRODUCTION
DOLAN AIRCRAFT MANUFACTURING COMPANY
DALLAS, TEXAS

WHICH WAY DO YOU VOTE...

ONE ENGINE OR TWO

in your Peacetime Plane?

BELLANCA has built planes with all types of power plants. Right now we're producing the Army Air Forces twin-engined AT-21-BL crew trainer, together with vital warplane armaments and components. But we're also giving a thought to *your* post-war plane!

We've prepared an interesting Aircraft Quiz covering many basic points of post-war airplane design, performance and operation. We're not saying a word about our own production models! We've approached these questions from a broad view. And you'll be surprised by the variety of opinion we're getting.

One engine or two? That is only a sample of the many questions. Tomorrow's aircraft owners are telling us *today* what they will expect in their post-war planes. Naturally, we respect their ideas, for we plan to produce *what they want*.

This Aircraft Quiz goes into types of construction and materials, flight characteristics, speeds, cost, range, payload and your own experience with airplanes. It covers many important points that you should weigh in reaching a decision as to what size and kind of aircraft will serve you with the greatest satisfaction after you've done your bit to win the war... after you have returned to the work of peace, and the pursuit of your own personal happiness.

Wouldn't you like to read our Aircraft Quiz—perhaps jot down your answers—and later see where you stand on these many essential questions? We'll be glad to mail this Quiz to you, free on request. Here's your chance to do a little post-war planning of your own!... Bellanca Aircraft Corporation, Dept. S-8, New Castle, Delaware.

BELLANCA

KEEP ON BUYING U. S. WAR BONDS

AIRPORT ADVENTURE

(Continued from page 35)

intersect work line. Use a dotted line for airspeed.

Step 2: Measure this line in degrees and — surprise! surprise! — there is your true *heading* from turning point to the alternate airport. (True heading 210 degrees.)

Remember, true heading and airspeed always go together on a dotted line—an amiable pair. Another handy reminder is that *heading* always means corrected for wind.

I should go into a long dissertation on the mathematical process by which the above plotting gives the heading. But I can't because I don't know and, anyhow, I don't *div a gamn.*

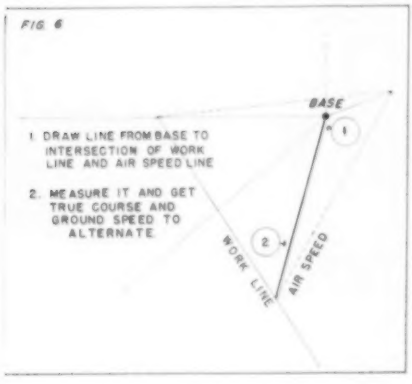
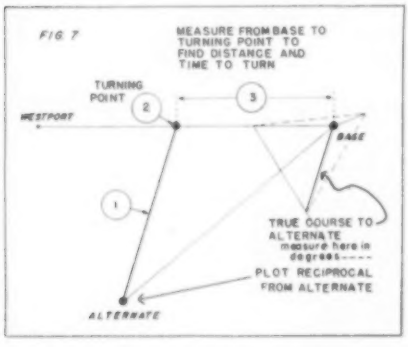


FIG 6
BASE
1
1. DRAW LINE FROM BASE TO INTERSECTION OF WORK LINE AND AIR SPEED LINE
2. MEASURE IT AND GET TRUE COURSE AND GROUND SPEED TO ALTERNATE
2
WORK LINE
AIR SPEED

We now have two sides of our second triangle — the wind side and the dotted airspeed-true heading side.

Step 1: Find the third side by drawing a line from the Base to the point where the airspeed intersects the work line.

Step 2: Measure this line in degrees and—surprise again!—this is the true *course* (196 deg.) from turning point to alternate. Measure its length to find ground speed to alternate (80 mph).



Let's go back to a "long shot" so we can see the whole picture and locate the turning point on our flight from Base to Westport. In Figure 6 we found that the true course was 196 degrees. A caution to observe: be sure to measure the true course (solid line) and not the true heading (dotted line). *The true course line begins at the Base.*

We located the Alternate airport in figure 1. Our next step is to plot the line from alternate to turning point. (We have to plot backwards, so to speak, because we don't yet know the turning point). In Figure 6 we found the true course from base to work line to be 196 degrees (actually this is the true course from turning point to alternate).

Now let's find the reciprocal of 196 degrees (196 minus 180 equals 16 degrees). Easy, isn't it?

Step 1: Now that we have found the reciprocal (16 deg.) we merely use our Weems plotter (free plug) and lay out a line from Alternate to where it will intersect our original 270 degree course—the course from Base to Westport.

Step 2: And thus, boys and girls, the turning point is automatically located.

This is harder to explain in print than in person. If you were alongside of me, I'd say simply, "shove the line you found in figure 6 over to the alternate airport." This statement would be illustrated by a parallel movement of the hands, with the left hand planking down on the alternate dot and falling across the 270 line. But we ain't got movies yet in SOUTHERN FLIGHT.

As I was saying, this intersection is our turning point.

Step 3: To find distance to turning point, simply measure from Base to turning point. Measure along original true course (270 deg.) line. Find distance 142 miles.

What's that? Well, maybe you did get 139.9999. Frankly, I fudged a little to make my time come out even —but aren't we admittedly unscientific?

These same data (I've tried for years to work that phrase in) may be found by mathematics, but to me at least, the above is much easier than formulae. Anyhow, we go in for simplicity and laziness in our Unscientific Methods of Navigation.

To find time to turn, use the time-speed-distance scale of your E6-B (or other computer). Set the hour arrow opposite the ground speed, 71 mph. Then, opposite 142 miles (remember the old rule: Miles OUTSIDE) read two hours, which is the time to be flown on the 270 degree course (Base to Westport) before turning.

The problem may be proved by measuring the distance from turning point to alternate (160 miles), apply the ground speed for that leg (80 mph found in Fig. 6, step 2) and find flying time from turn to alternate (2 hours).

This flying time (2 hours) added to the flying time from Base to turning point (also 2 hours) should equal the fuel hours (4 hours).

There is no intent to claim originality on my part for this alternate airport method. You will find an excellent exposition of it in CAA's "Practical Air Navigation" and other good textbooks.

Scholarly navigators can find many flaws in my Unscientific Method; however, it is intended, not for them, but for others who, like the author, do not care for theory but need the results thereof.

As a footnote, I wish to thank the many E6-B fans who have written such appreciative letters about the "Computer Confusion" article which appeared in the September issue of SOUTHERN FLIGHT.

Because of the time and work involved in assisting in setting up our new CAP Texas Forest Patrol headquarters and bases I have not had time to reply to them personally.

However, I hope soon to have additional articles on that marvelous computer in future sessions in SOUTHERN FLIGHT.

Incidentally, if you have a black E6-B, stick it under an *ultra violet* light, turn out the other lights, and get the surprise of your life. Let me know how you come out!

DIVIDED WE STAND

(Continued from page 10)

Flight and overhaul contracts are being cancelled wholesale. Just one dictatorial directive from Washington, cutting off aviation fuel for the duration would be all that's needed to dig the grave for non-scheduled aviation. Only through forceful unity of action can we hope for survival or any sort of orderly existence for the duration of the war, without which we might as well forget any plans or programs for the postwar world.

Some preliminary discussions will be held April 28, 29 and 30 in Dallas, Texas, during the Southwest Aircraft and Accessories Exposition. Definite action will be proposed May 1, 2, and 3 at Texas A. & M. College during the third annual Wartime Planning Conference. This series of meetings and discussions is in answer to the universal demand to take action at once.

Today, non-scheduled civil aviation stands divided. The intelligent leaders and business men within this great family might well ponder their ultimate tragic fate if they fail now to achieve the unity that alone will bring stability out of chaos, solidarity out of impotent division. ★ ★ ★

This will take a man higher even than a P-51.

THIS scientific apparatus looks quite earth-bound.

But, for experimental purposes at least, it can take a man higher than any aircraft ever built.

It is Sperry's new High Altitude Laboratory, constructed through the cooperation and assistance of our Government, and dedicated to the service of our Country in memory of Frederic Blin Vose, a Sperry engineer who lost his life in the performance of his duties in the war effort.

This laboratory helps find the answers to questions like these:

How does man react in the stratosphere when the sub-zero cold bites through his heated flying suit? Will an instrument that works perfectly at 2000 feet, "conk out" at 40,000 feet?

The laboratory can mechanically simulate atmospheric pressures equivalent to those met at altitudes over 45,000 feet. It duplicates temperatures as low as 87 degrees below zero Fahrenheit.

This permits the testing of flight instruments and the reactions of men who use them under atmospheric and temperature conditions virtually identical with those met 8 miles up.

Testing the *combination* of man and instrument in this laboratory will result in better protection for the lives of our military and naval flyers, and makes possible improved instrument design and more efficient operation.

Experienced engineers and a medical staff, trained in the technique of the physiology of high-altitude flying developed by the Mayo Clinic and the Medical Departments of the Armed Forces, direct the Sperry laboratory. This laboratory serves other war manufacturers as well as our Armed Forces.

It is Sperry's hope that the tests and studies of man and his instruments in this laboratory will make possible the development of the perfect man-instrument team that will function in complete harmony in the frigid blue of the stratosphere.

Sperry Gyroscope Company INC.

BROOKLYN, NEW YORK DIVISION OF THE SPERRY CORPORATION

GYROSCOPICS • ELECTRONICS • AUTOMATIC COMPUTATION • SERVO-MECHANISMS

POSTWAR PLANNING

(Continued from page 38)

touchy and sensitive condition of foreign relations, which we like to blame on some of our allies, instead of ourselves.

It is not like America to sit back in fear and trembling when our national and commercial interests are at stake. The failure of our leaders to develop a virile maritime policy resulted in the stagnation of our sea-going merchant marine. Let's not permit the same thing to happen to our future merchant marine of the air.

What have we to fear from the British or the Russians? With enlightened leadership in Washington and with the ball placed squarely in the hands of American commercial enterprise, we need have no fear of any competition no matter from what quarter it develops. And above all, we should not be afraid to develop, then announce to the world, this policy our government intends to seek when hostilities cease — a policy built on the age-old American practice of international co-operation and goodwill, in which American ingenuity can operate under a system of healthy competition.

An unfortunate deterrent for the adoption of such a policy is a growing feeling running through this nation —a feeling sponsored by and bred in officialdom—that we shall live in a very different world after the war, so different that we must leave some mighty basic problems unsolved until peace comes.

Who among us can predict the postwar world from where we sit now? And why should there be any fear about it? We will no doubt emerge from this war with heavier global responsibilities than ever before in our history, but that is all the more reason why we should get together now and set down the fundamentals and basic principles of American participation in global aviation.

The long predicted international conferences on the subject are most timely. Even though our delegates go in ignorance and can make no commitments, let us earnestly hope that they will return convinced that time is running out, that we must forge out of good American metal a policy explicit enough to guarantee American equality and fluid enough so that it can be revised to fit changing situations in a changing world. We have the brains in this country — and the operating experience — to erect a strong international aviation policy, and all that remains is for those in the Administration dealing in the subject to draft them to assist in the job.

CIVIL AVIATION'S OBJECTIVES

The Civil Aviation Joint Legislative Committee (SOUTHERN FLIGHT, February, 1944, p. 31 et seq.) released its legislative aims following a meeting in Washington, March 21. Composed of representatives of the Aero Chamber, the American Association of Airport Executives, the Aviation Distributors and Manufacturers Association, the Early Birds, Aviation Insurance Groups, the NAA, the NASAO and the NATA, the committee advocated the following basic principles:

The air space of the United States and its territories should be made available for use by all citizens with only such restrictions as are necessary for safety requirements, National Defense, and the sound economic development of Interstate and Foreign Air Commerce.

AIRPORT PROVISIONS: The Federal Authority shall have power to make recommendations with respect to the aeronautical characteristics of airports and to make safety regulations pertaining to the construction, maintenance and in-flight operation on and off airports used in interstate scheduled air transport, but on airports constructed or maintained in whole or in part by public funds such regulations shall make reasonable provision for the use of airport facilities by private and non-scheduled aircraft. Zoning questions shall be left to the States.

AIR CONTRACTOR PROVISIONS: There should be clear-cut distinction between scheduled and non-scheduled carriers. The non-scheduled carriers should be subject to a minimum of regulation consistent with safety, but not to economic regulation.

GOVERNMENT TRAINING PROVISIONS: The direct training of civilian pilots, technicians and mechanics is not the function of government, and therefore should not be entered into by government in competition with private enterprise. Federal funds appropriated for this purpose should be expended under contract with private enterprise.

POWERS OF THE ADMINISTRATOR PROVISIONS: The independence of the administrative agency should be restored, making it responsible for the development and regulation of civil aviation, as an agency of the Congress. Powers of the commission and the administrator should be limited and all orders and regulations of the commission and administrator should be promulgated or entered only after due notice and hearing and should be subject to judicial review. Jurisdiction of the Federal Administrative agency should be clearly defined so as to avoid unnecessary duplication and conflict between state and federal regulation of civil aviation, leaving all operations that are intrastate to the jurisdiction of the several states.

TAXATION PROVISIONS: Taxation of aircraft should not be the subject of Federal Legislation.

SAFETY PROVISIONS: Authority to promulgate air-safety regulations should be vested in a Federal Administrative agency. The power to investigate air accidents should be vested in an independent Board or Administrator.

INSURANCE PROVISIONS: Aviation Insurance has no place whatsoever in Federal Legislation.

NEW BILL

(Continued from page 42)

of postwar aviation possibilities, the author believes to be a matter for future legislation.

The Civilian Pilot Training Act and the question of amendment or continuance of that Act is also left for separate consideration, since legislation on this subject already is pending before the Congress.

McCarran's Bill does not touch upon the subject of tax exemption of air carriers. "My study of the laws and practical experience of the States in the field of aviation taxation," he observes, "has convinced me such taxation places no real burden on commerce. Airlines are no more entitled to a tax haven than any other citizen. I realize that air carriers have particular problems that are arising in the tax field, but I believe that experience will gradually indicate the proper solution to such problems.

Seeks Constructive Criticism

"In writing this bill I have attempted to collect and correlate the experience since 1938 of the Federal Government, the air transport industry, commercial pilots, the aviation manufacturing industry, private flyers, and others who participate in or are affected by aviation in all its phases," Sen. McCarran explained.

"I want this bill to represent the very best in aviation experience and the best thought and planning for the benefit of this country, its entire aeronautical industry, and all its citizens who will engage in or derive their livelihood from postwar aviation.

"Realizing quite well that achievement of this end will require the assistance and constructive criticism of many leaders in the aviation field who have not yet presented their suggestions to me, I bespeak for the bill the most earnest study and consideration . . ."

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SKY'S THE LIMIT

(Continued from page 48)

imposing immensely larger forces upon their airplane than flying in level flight, even though the airspeed is not above normal. This is caused by the fact that the distribution of weight is with respect to the forces of gravity which are vertically downward. When the airplane is banked sharply, its effective wing area is reduced with respect to gravity and consequently, a greater force must be applied in order to sustain it. At the same time, the forward speed is changed in direction centripetal forces are developed, which in a sharp or sudden maneuver, may be many times the normal forces. All these things have at one time or another resulted in wings being pulled off, ailerons being lost, tails being buffeted to such an extent that they shake off or break off, with resultant demolition of the aircraft, and death of the occupants.

A long time ago, we used to ride with a pilot whose favorite stunt was to take off from the airport, make a climbing turn, dive back on the field, and then pull up sharply, so sharply in fact that bits of my stomach have never since been recovered. Being ignorant of the forces involved in those days, I simply thought the maneuver was very unsatisfactory from my stomach's point of view. But since then, I have shuddered many times at night and in other places thinking what forces must have been put on that airplane and how near some of them came to being as much as the ship would stand. It's bad business.

Most people on the ground will think that you are pretty smart if you can fly the airplane away straight and level. They will just think you are an idiot if you cut didoes with it. Whether you are interested in saving your own life or not, please be considerate of other people. Cutting monkey-shines serves no useful purpose.

★ ★ ★

Incidentally, in connection with the Third Wartime Aviation Planning Conference at Texas A. & M. College, at College Station, Texas, we have attended the first two of these conferences and heartily recommend to anyone interested that these have been and are intended to be working conferences and there is an opportunity for everyone to get his word in and to help consolidate the opinion on the subject discussed. There are always a lot of influential people there, and it represents an excellent opportunity to get a cross section of opinion on aviation. ★ ★ ★

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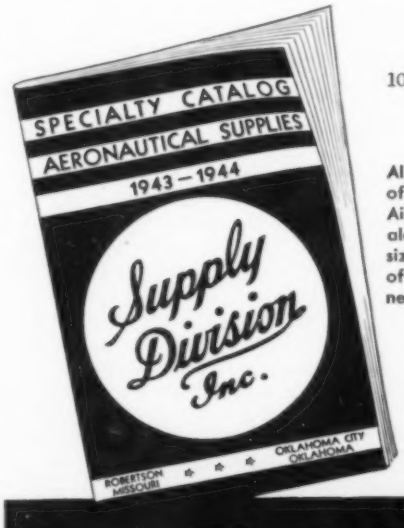

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AIR POWER *In Action*

By TOM ASHLEY

Even with enemy resources exposed day and night, and in color, to incredibly clear and accurate photographic reconnaissance, there is still an element of conjecture in the meticulous study of strategic bombing results required of air intelligence. Extent of physical damage to an aircraft factory, or ball bearing plant, or similar facility shows up plain enough in the photos. But many intangibles enter the proposition of translating this destruction into combat deficiencies. Days, weeks or months may pass before the bombing of a factory results in the grounding of a German fighter squadron for lack of planes or accessories.

Last month some of the guesswork in Allied air intelligence was removed by the Germans themselves. They failed to intercept daylight raiders over several vital targets—including Berlin, which the USAAF bombed for the first time. Germany's so-called "roof" thus began to reveal leaks of the most serious nature. It is true that on other raids the Luftwaffe took heavy toll of Allied bombers, as witness the loss of sixty-eight U. S. bombers on one Berlin raid and seventy-three RAF night bombers on another assault there. But the significant point was that German fighters were unable consistently to challenge the tremendous upsurge of the U. S. and British air campaign.

Instead of sending its squadrons running off in all directions to defend a widely-dispersed industrial system, the Luftwaffe now concentrates its efforts on the defense of a fewer number of places. This kind of logic is inspired solely by expediency, and offers only temporary refuge from the burden of the issue at hand. The Luftwaffe had already retreated eastward, away from the menace of Allied tactical air strength. This exposed not only valuable resources such as factories and communications in the West, but also left unprotected the tremendous concentrations of troops, guns and other materiel which Germany must maintain along the invasion coast. Now the retreat is resumed, this time leaving wide areas of the homeland itself open to strategic air punishment. Four-fifths of the German fighter strength has been tied down to a relatively small number of German factories, according to an official British estimate. Despite this effort at last-minute heroics, no fewer than sixteen major factories nourishing the Luftwaffe were destroyed or heavily damaged by U. S. bombers during the last month, according to Lieut. Gen. Jimmy Doolittle.

Meanwhile, critics of air power had a field day last month when our side pulled another of its classic boners. The little Italian village of Cassino was given a blitzing by both heavy and medium bombers, after which the Fifth Army was expected to sail right on through to Rome. Lieut. Gen. Ira C. Eaker should have known better. What happened, of course, was that bombs reduced the town to rubble but left standing some mighty convenient hillsides bristling with German artillery, to say nothing of underground tunnels beneath the rubble, from which the defenders climbed to convert the fallen walls and bomb craters into fortress positions even stronger than before. The play flopped, and we still don't have Cassino in our

GI Conception of B-29

—(As pictured in Air Force, the service journal, by Sgt. G. Adams and Cpl. S. Charles, AAF Training Aids Div.)

LOSSES IN THE AIR WAR
February 26-March 25, 1944
(Does Not Include Probables or Damaged Totals)

	European		Italy		Southwest Pacific		Russia*
	Enemy	Allied	Enemy	Allied	Enemy	Allied	
Feb. 26	6	....	....	....	....	....	27
Feb. 27	....	....	1	2	1	....	98
Feb. 28	1	6	....	3	....	1	36
Feb. 29	11	3	7	1	....	....	9
Mar. 1	3	4	....	....	3	....	24
Mar. 2	18	19	6	....	....	....	45
Mar. 3	8	16	11	10	1	....	39
Mar. 4	15	37	1	2	8	1	49
Mar. 5	27	9	4	....	....	....	20
Mar. 6	176	79	....	3	5	....	71
Mar. 7	....	2	5	4	1	....	98
Mar. 8	125	50	8	8	7	1	56
Mar. 9	....	8	....	2	....	....	77
Mar. 10	4	1	5	1	17	....	49
Mar. 11	....	6	36	14	1	2	35
Mar. 12	....	....	1	....	....	....	23
Mar. 13	....	3	3	6	26	2	20
Mar. 14	9	....	5	1	....	....	35
Mar. 15	36	48	....	6	32	4	42
Mar. 16	125	34	3	4	9	....	10
Mar. 17	....	2	9	11	6	2	37
Mar. 18	82	25	56	....	1	....	52
Mar. 19	8	1	33	17	....	....	61
Mar. 20	4	14	6	3	....	....	47
Mar. 21	33	8	4	4	2	3	29
Mar. 22	1	56	8	4	....	....	24
Mar. 23	21	35	1	....	....	....	24
Mar. 24	11	81	19	11	....	1	28
Mar. 25	4	4	....	1	....	....	18
TOTALS	728	551	232	118	120	17	1183
Totals Since Jan. 1	2241	1638	993	379	1152	144	3017

OTHER AREAS FOR FEB. 26-MAR. 25

CHINA: Eighty-one enemy planes, including some on ground, destroyed at loss of seven. Enemy planes destroyed since Jan. 1 total 107 at loss of twenty-three.

PACIFIC: Two enemy planes destroyed at loss of five. Enemy planes destroyed since Jan. 1 total 415 at loss of twenty-eight.

SOUTHEAST ASIA: Eighty-nine enemy planes destroyed at loss of twenty-six. Enemy planes destroyed since Jan. 1 total 131 at loss of sixty-three.

MIDDLE EAST: Thirteen enemy planes destroyed at loss of eleven. Enemy planes destroyed since Jan. 1 total thirty-seven at loss of forty.

*RUSSIA: Does not reveal its own losses.

(NOTE: These figures are compiled from daily Headquarters communiques issued by the respective commands. They are therefore subject to periodic adjustment. Dates for Southwest Pacific are those on which figures are released.)

control. Those who cited this abortion as "proof" of air power's impotency are making the same mistake Eaker committed. They're kidding themselves — not others. Cassino was a pathetic example of the misuse of air strength by General Eaker.

Southwest Pacific

On the other side of the globe, the month brought a turning point in the campaign aimed at the Philippines. Air power, by the end of March, had isolated approximately 100,000 Japs in New Britain, New Ireland and the northern Solomons. After seizing air bases in the Admiralty and St. Matthias Islands, General MacArthur announced the axis of his advance had thus been changed. The great swing to the north, pivoting on New Guinea, was now turned to the west. The Admiralty air base is only 1,300 miles from the Philippines.

Pacific

Significant in the Navy's mid-Pacific drive toward the Philippines was the close co-ordination of Army bombers with Navy carrier operations. Seventh AAF Liberators began pounding Wake Island with regularity, and from Eniwetok the B-24's opened an offensive against Truk. Before the end of the month the 13th AAF of the Southwest Pacific was moving its Liberators into the newly-captured St. Matthias air base, less than 600 miles below Truk and closer than Eniwetok, thereby applying aerial pincers on that major Jap outpost.

Southeast Asia

Another surprise for the Japs was an air-borne invasion of the Burma jungles south of Myitkyina and far behind the Jap lines. Col. Philip G. Cochran's gliders had difficulties — several made forced landings near the Indian border, a few crashed at the "airhead"—but the operation's initial success was impressive. Air strips were immediately readied for C-47's to bring reinforcements and weapons the next day, and it was eight days before the Japs counteracted, but ineffectively.

China

General Chennault's 14th AAF observed its first anniversary on March 9, and that wily master of wings and words emphasized once again the important work his airmen are doing by sinking Japanese shipping along the China coast. Since March 10, 1943, they have sunk 274,939 tons, probably sunk more, and damaged 282,350 tons of Jap shipping. "Some day, I venture to predict, we shall cut his (the Jap's military system's) jugular and the organism shall die," he promised. There will be hard times ahead, he said, "but we are on the offensive, not the defensive, now. Soon or late, the end is in sight." He also noted that the 14th continues to be an undersized striking force. ★ ★ ★

The WORLD'S WINGS

By LUCIEN ZACHAROFF

CHINA'S CHANCES

After the war many countries—great and small, belligerent and neutral — will loom larger than ever on the aviation scene. Some will work hitherto dormant natural resources essential to aircraft production. Others will cultivate domestic air routes. All will sprout new aerial links with the outside world. None, if it can help it, will risk being by-passed by the air age.

Air Empires Already Shaping

These expectations are neither idle speculation nor rabidly wishful thinking on the part of the air-minded. At the same time they are not startlingly novel. Why bring them up at this time? Well, this observer is persuaded that it is already possible to emerge from the stage of theorizing on the post-war international setup and to start filling in details in the broad framework which until now has been pretty much of a broad blank. The war itself is furnishing some straws in the wind.

Take China, for instance. A major partner in the United Nations, she is conceded enormously enhanced prestige — military, political, economic — after Japan is smashed. Unlike Tokyo's mountainous-island domain, China's huge expanses on the mainland are extremely conducive to the growth of air transport. Her teeming hundreds of millions of people are an inexhaustible reservoir of manpower for the aero industries and of consumers for the products of those industries. With the inevitable industrial revolution, their standard of living will rise, abetting scheduled air travel and private flying.

Moreover, China's forthcoming role as policeman-in-chief of the vast Pacific littoral will necessitate a formidable air force, plus auxiliaries of military, semi-military and civil flying and ground services and organizations.

Consequently, we may permit ourselves to read significance into certain remarks made recently at a press conference by Tseng Yang-Fu, Chinese Minister of Communications. In a review of his country's maintenance and extension communication lines in the interests of both economic and "shooting" warfare, Mr. Tseng reported the opening of the air transport line between China and India. Presumably this is in addition to our Army Air Transport Command's and China National Aviation Corporation's voluminous traffic over the "hump" in lieu of former surface haulage on the Burma Road.

What the wartime importance and achievements of the new route are we may not know for the duration. But it is of the shape of things to come. Furthermore, such an undertaking is sure to be integrated into the total transportation network, eventually connecting with important waterways in China and possibly in India.

As We Were Saying

While China is destined for aeronautical development along modern lines, thanks to the metals and minerals available, Japan's lack thereof is notorious. Last month The World's Wings forecast a return to the wooden-construction era for Nipponese aircraft makers. As the March issue, carrying this prediction, was rolling off the presses, a public admission to that effect was being made by Tokyo.

Acknowledging the desperate need of more warplanes, even if wooden, the Kooya Temple, which boasts extensive forest lands at its disposal, was setting up the Kooya Temple Machinery Corp. to produce wooden aircraft parts. Capitalized at 180,000 yen, the firm was supposed to be starting output in March.

Strides in Sweden

Among the neutrals aspiring to a place in the postwar aviation sun is alert Sweden. Her aircraft industry has made great strides. Her air rearmament program is to be completed by July, 1947, Defense Minister Skoeld has promised in Parliament. Under way at the Linkoping plant is mass production of the first bomber completely designed and built in Sweden. Designated as B-18, this medium bomber is reported to incorporate two engines and a crew of three.

Even a weak sister like Franco's Spain is extending extraordinary credits for the expansion of the native aircraft industry and for the purchase of more materiel.

Not all the regimes scrambling on the postwar bandwagon will endure until the dawn of that period. But the advent of the air age itself is inexorable. ★ ★ ★

Nearly Half Billion Horsepower Produced by P & W, Wright

A total of 423,200,000 horsepower in radial aircraft engines was produced during the twenty-five months after Pearl Harbor by Pratt & Whitney and Wright Aeronautical and their licensees, announcements by the firms last month revealed. Total P & W horsepower was 250,000,000 — enough, if applied only to the highest powered single engine fighting planes of our Army and Navy, to put 125,000 Corsairs, Thunderbolts or Hellcats into the war. Wright produced 184,000,000 horsepower — many times over the combined power capacity of Bonneville, Grand Coulee and Boulder dam hydroelectric plants. The latest Wright is the B-29's 2,200-h.p. type.

Plane Output Now Running 350 Daily; Weight Up 4 Per Cent

Present aircraft production is 350 planes per day, and the American aircraft industry produced 153,061 planes during the last three years, WPB Aircraft Production Board Chairman C. E. Wilson reported last month. Of the total, 105,126 were combat planes. We retained 122,000 and 28,000 were sent to our Allies, he said. In February (a short month) we produced 8,760 planes. British production through 1943 totalled 90,000.

Referring to February output, Wilson said airframe tonnage increased 4 per cent above the January figure, climbing from 90,300,000 to 93,500,000 pounds. Tactical types, including fighters, bombers and cargo planes, formed 84 per cent of the total. Forty-three aircraft plants met or exceeded their schedules.

The West Coast Aircraft Production Council says the average weight per plane has soared like this: 1942, 9,288 pounds; 1943, 11,673 pounds; January, 1944, 12,463 pounds; February, 1944, 12,639 pounds.

50,000th Allison Engine Delivered

On March 29 the 50,000th Allison aircraft engine was produced in Indianapolis, Ind., by the Allison Division of General Motors. It was an 1,800-h.p., liquid-cooled motor, and brought to 60,000,000 the total horsepower produced by Allison since the beginning of the war in Europe. The first Allison engine to fly, a 1,000-h.p. model produced in 1936, was turned over by the Army to the firm for preservation.

The new 1,800-h.p. model will power a plane still on the secret list that will have engine-driven, two-stage, hydraulic controlled supercharging, an Allison development.

Greater Marvels than Jet Propulsion Promised by AAF Materiel Command

Highly accurate bombsights and jet propulsion planes, marvelous as they have turned out to be, will soon give way to even greater marvels. So spoke Maj. Gen. Charles E. Branshaw, commanding the AAF Materiel Command, last month. He did not elaborate, but used the statement to emphasize the important accomplishments of the Materiel Command.

Engineering, development, procurement, production and inspection of all AAF equipment are the responsibility of the Materiel Command, whose scentists and technicians are world leaders in aeronautical development.

Directing the U. S. warplane program are Assistant Secretary of War for Air Robert Lovett (left); Maj. Gen. Charles B. Branshaw, head of the AAF Materiel Command (center), and Maj. Gen. Oliver P. Echols, Assistant Chief of Air Staff, M. M. & D., shown above discussing designs against the heart of Germany.

Working closely with manufacturers' engineers, the Materiel Command has brought about hundreds of aviation marvels. Transformation of the World War I biplane of "sticks and wires" into an internally-braced monoplane, and the conversion from wood to all-metal construction highlight its earlier activities. Late developments to its credit include: A self-sealing fuel tank so successful the Germans copied it and abandoned their own designs; perfection of the turbo supercharger, incredibly-accurate bombsights; an automatic pilot which eliminates pilot error in the bombing run; 75-mm cannon for aircraft and many other marvels.

Wright Field's elaborate laboratories never cease their efforts in the unending work for world superiority. As manufacturers design new combat planes, Materiel Command begins tests, projects changes, revises plans, revamps a wing-tip here, a tail surface or gun mount there. Sometimes the process is reversed, with the design originating at Wright Field and transmitted to the industry — such as with the jet propulsion fighter assigned to Bell. If the new plane or equipment (such as vital aero medical devices or mechanical accessories) is accepted after exhaustive tests and production is decided upon, Materiel Command issues a stream of orders to hundreds of contractors. Reports from actual combat are carefully obtained and weighed for modifications and improvements to boost performance.

"Ideas and designs for new warplanes, weapons and equipment are being produced constantly," said Gen. Branshaw. "The laboratories of the Materiel Command are engaged in an accelerating program of testing and developing these new ideas and designs in a never-ending struggle to keep the AAF in a position of leadership among the world air powers technically and operationally." ★ ★ ★

Fairchild Gets Rush Order for New Transports

Following termination of PT-19 trainer contracts, the Fairchild Aircraft Division of Fairchild Engine and Airplane Corp., at Hagerstown, Md., began changing over tooling for the rush production of a quantity of C-82 transports. General Manager R. S. Boutelle said the release of about 200 probationary workers during March, April and May is necessary until rehiring proceeds beginning in June. The C-82 cargo project was described as an urgent one, since the plane performs shuttle transport service difficult for other types to accomplish.

The C-82 is a huge, twin-engined, twin-boomed transport of radical design, details of which are a secret.

A new addition to the factory, adding 200,000 square feet of floor space, is being completed for the cargo project. Overall height will equal that of a six-story building, with doors at one end forty-six feet high and 125 feet wide. The big planes will roll on a three-rail track during final assembly. Outside is a six-acre concrete apron.

Four New Planes Under Development by Douglas

In his annual report last month, Donald W. Douglas said his firm has four new airplanes of "exceptional performance and promise" under development. He is currently delivering eight distinct models, being the only producer of three four-engine types of military planes —the Douglas C-54, Boeing B-17 and Consolidated B-24.

Douglas in 1943 turned out 112,000,000 pounds of combat planes and parts with sales and fixed-fee billings grossing $987,687,196. Net income was only 6 per cent of total sales, amounting to $5,952,257. Employes totaled 160,000 in August. Of all planes produced, 15.8 per cent were dive bombers, 19.3 per cent attack bombers, 31.4 per cent heavy bombers, and 33.5 per cent transports.

Test Sale of Surplus Materials Is Watched

Millions of dollars worth of surplus critical materials which cannot be used in current combat aircraft production are being offered for sale by five of the largest Eastern aircraft corporations. Results will be watched closely by government and industry representatives in the hope they will point the way to a faster and more effective solution of the huge materials redistribution and disposal problem to be encountered in contract cancellations. Participating are Bendix Aviation Corp., Bell Aircraft Co., Eastern Aircraft Division of General Motors, Glenn L. Martin Co., and Republic Aviation Corp. Catalogs are available to prospective buyers.

Low Profit Margin in Aircraft Cited

A survey covering 1942 shows a profit of only 2.6 per cent on sales of aircraft, the Aeronautical Chamber of Commerce pointed out last month in stating the industry is doing its wartime job at a lower profit margin than any major industry surveyed by the Securities and Exchange Commission. According to SEC, profits after taxes for 1942 were: aircraft 2.6 per cent, rubber 3.5 per cent, railroad equipment 3.6 per cent, electrical equipment 4.1 per cent, industrial machinery 5.3 per cent and agricultural machinery 6.1 per cent.

TWO NEW BUILDINGS now going up will greatly increase the facilities of the Taylorcraft Aviation Corporation at Alliance, Ohio, where L-2 "Hedgehoppers" are built for the military. One building is 108 feet wide and 630 feet long. In 1941 the original 60-ft. x 300-ft. factory was enlarged by a 100-ft. x 300-ft. addition.

Midwest Personnel Directors Discuss Draft at New Orleans

Colonel William L. Iliff, assistant chief, field division, National Selective Service headquarters, discussed the seriousness of the new policy of drafting aircraft workers in the age bracket of eighteen to twenty-six years as the feature of a meeting of the Midwest Airframe Personnel Directors group in New Orleans last month. Warren Blazier, personnel director of Beech Aircraft Corp., presided as chairman. Personnel directors attending the two-day conference included Fred S. Reyer and Charles Rucker, Higgins Aircraft, Inc., New Orleans; S. E. Branch and D. R. Zook, North American Aviation, Inc., Kansas City; Orth Wein, McDonnell Aircraft Corp., St. Louis; Tom Killeen, Curtiss-Wright Corp., St. Louis; George Trombold, Boeing Airplane Co., Wichita; Myron E. Russ, Cessna Aircraft Co., Wichita; John Stevens, Culver Aircraft Corp., Wichita; Capt. E. Zeigler and Lt. John Cumming, Midwestern Procurement District, Wichita; Harry Bowman, Republic Aviation Corp., Evansville, Ind.; K. M. Howard, Continental Air Lines Modification Center, Denver, and Homer Skelly, Beech Aircraft.

Canadian Aircraft Production Analyzed

Canada's aircraft industry, which began the war with 1,000 workers, now employs 122,000 persons and has turned out 11,390 trainers, transports and bombers since war began. A total of 4,312 planes, with a gross poundage of 21,430,000, is the 1944 goal.

Sharp curtailment of trainer production is being effected, as shown by the following monthly figures for 1943 and proposed monthly deliveries for 1944: Cornell (Fairchild PT), 125 and 50; Harvard (North American AT-6), 100 and 100; Avro Anson (twin-engined AT), 70 and 35. Figures for Noorduyn Norseman transports not available.

Monthly output of combat types last year, followed by proposed monthly delivery schedules for 1944, are as follows: DeHavilland Mosquito, 33 and 52; Avro Lancaster (four-engined), less than 9 last year and 17 by May, 30 by December; PBY Catalina (Consolidated) 37 peak reached last December and 37; Helldiver (Curtiss), 20 and 70 by May, 130 by December.

SAWE Meets at Denver

Over 125 weight engineers were expected to attend the annual conference of the Society of Aeronautical Weight Engineers at Denver April 17-20 to plan activities for 1944. The Society hopes to be able to assist air transport operators in maximum payload problems. E. E. Roberts of Vultee Field, Calif., is national chairman.

Firm Name Changed

Cody Laird, president, last month announced the name of Georgia Air Service, Inc., with headquarters in Atlanta, had been changed to Southeastern Air Service, Inc. The firm operates Army flight training schools at Bennettsville, S. C., and Jackson, Tenn., and has postwar plans to make available to commercial and private flyers its backlog of several thousand hours of war flying experience and will have available the services of over 200 pilots holding commercial and instructor ratings, together with as many airplane and engine mechanics. An affiliate, Southeastern Air Express, Inc., has applied for feeder line passenger, mail and freight routes in Tennessee, Louisiana, Mississippi, Alabama, Georgia, Florida, North Carolina and South Carolina.

National Light Plane Meeting Scheduled

Twenty-one papers presented by specialists in light aircraft developments will feature the National Light Aircraft Meeting to be conducted by the Institute of the Aeronautical Sciences at Detroit, Mich., April 27-28. Discussion leaders include Peter Altman, William B. Stout, James U. Kinnucan, and Arnold N. Kuethe.

Pacific Airmotive Opens K. C. Branch

Making another step toward expanded postwar services to private flying, Pacific Airmotive, a division of Airplane Manufacturing and Supply Corp., of Glendale, Calif., has established a branch in Kansas City, Mo., with a plant of 30,000 sq. feet of floor area housing local distribution activities as well as its engine and new accessories overhaul station. In addition, a service base is being established on the municipal airport. Manager of the Kansas City division is W. E. Briece, formerly vice president in charge of the supply division of Missouri Aviation.

Plant Efficiency Easing Demands for Manpower

More efficient use of manpower by war industries will help remove the "critical labor area" designation from the West Coast, C. C. Codding, general manager of Aircrafts Parts Association, reported to the Association's board of directors, after a survey of ninety-five member companies. Codding reported that while most of these plants are working on contracts in excess of last year, the number of workers employed is only 2.15 per cent more than those employed in October, 1943. While 73 per cent of the companies surveyed needed more workers, the number needed amounted to only 7.02 per cent increase over present employment. Plants are using various methods to increase efficient utilization of manpower, Codding said. One plant cut absenteeism to 2.3 per cent, another installed automatic machinery that saved thousands of man-hours. Another factory introduced a program of employe services that reduced turnover by 50 per cent, while another is using 65 per cent women employes. Several member companies have tightened their methods of cost control, and one inaugurated an incentive plan that has upped output of parts and increased workers' incomes while reducing unit costs. The Parts Association published a "job dictionary" during the past year and made wage surveys

that resulted in a more scientific approach to wage problems in manufacturing operations, Codding said.

Lawrance Expands Aeronautical Facilities

The corporation name of Lawrance Engineering and Research Corporation has been changed to Lawrance Aeronautical Corporation, in line with expansion of their production facilities to include several additional aviation accessories as well as auxiliary power plants. Lawrance Aeronautical has plants at Linden and Elizabeth, New Jersey.

Curtiss Is Malabar Exporter

The Export Sales Division of Curtiss-Wright Corporation through an agreement with the Malabar Machine Company of Los Angeles will be exclusive representatives of Malabar hydraulic products for aviation and industrial uses throughout the world, except United States and Canada. Malabar is now building hydraulic aviation and salvage jacks for the U. S. Navy and a full line of jacks for airlines and aircraft manufacturers.

Gabriel Acquires Metal Hose Company

The Gabriel Company of Cleveland has acquired the International Metal Hose Company through the purchase of all its machinery, equipment, inventory, patents and good will. William H. Miller will continue as general manager of the International Metal Hose Company which is now a division of Gabriel, and is expected to be elected a vice president and director of the parent company, according to John H. Briggs, president. He also announced the election of L. W. Klein, who has been vice president and sales manager of Gabriel, as executive vice president.

X-Ray Speeds Parts Layouts on Liberators

X-ray duplication is being used in the engineering loft department of Consolidated Vultee's Fort Worth plant to eliminate duplicate drawings of plane parts, thus speeding production of Liberator bombers and Liberator Express transports. Sheets of cold-rolled steel are covered with layers of special lacquer, which becomes luminous when exposed to X-rays. After the painted steel sheets are sanded, major lines and details of the design of an airplane part are carefully drawn on the sheets. Accuracy of the design, then is checked and approved master layout sheets go to the X-ray rooms for duplication in entirety.

Delivers the Goods

The Dallas Branch of the Keystone Tool and Supply Co., delivered on schedule 92 per cent of the material booked for sale in 1943, according to H. L. Hutchinson, district manager. Keystone furnishes aircraft manufacturers with all types of tools, dies, abrasives, drills, etc., and plans an increase in the sales personnel in keeping with the new and larger quarters in Dallas to serve the area's increased business.

'Chute Chart Available

The Switlik Parachute Company is now distributing a colored chart describing the mechanical operations necessary in the manufacture of vital parts of a parachute. The chart, which is being distributed to riggers, War Training and Army and Navy centers, and others in the parachute field, may be obtained, without cost, by writing the Switlik Company, Trenton 7, N. Y.

Houdry Expands Research

Laboratory facilities of the Houdry Process Corporation, Wilmington, Dela., are being expanded by a new addition to the main research laboratories of Catalytic Development Corp., Linwood, Pa., a subsidiary company, which will almost double working space. Upon completion, most of the corporation personnel will be headquartered at the Linwood laboratories under the subsidiary company.

Dillon in Houston

Dillon Scale Company of Dallas recently opened a display room and office in Houston, under the direction of E. M. Dillon, to accommodate the increase of business. The Dillon Company, established twenty-three years ago, is one of the largest distributors in the Southwest of castors, wheels, warehouse trucks, conveyor systems, lift jacks and scales.

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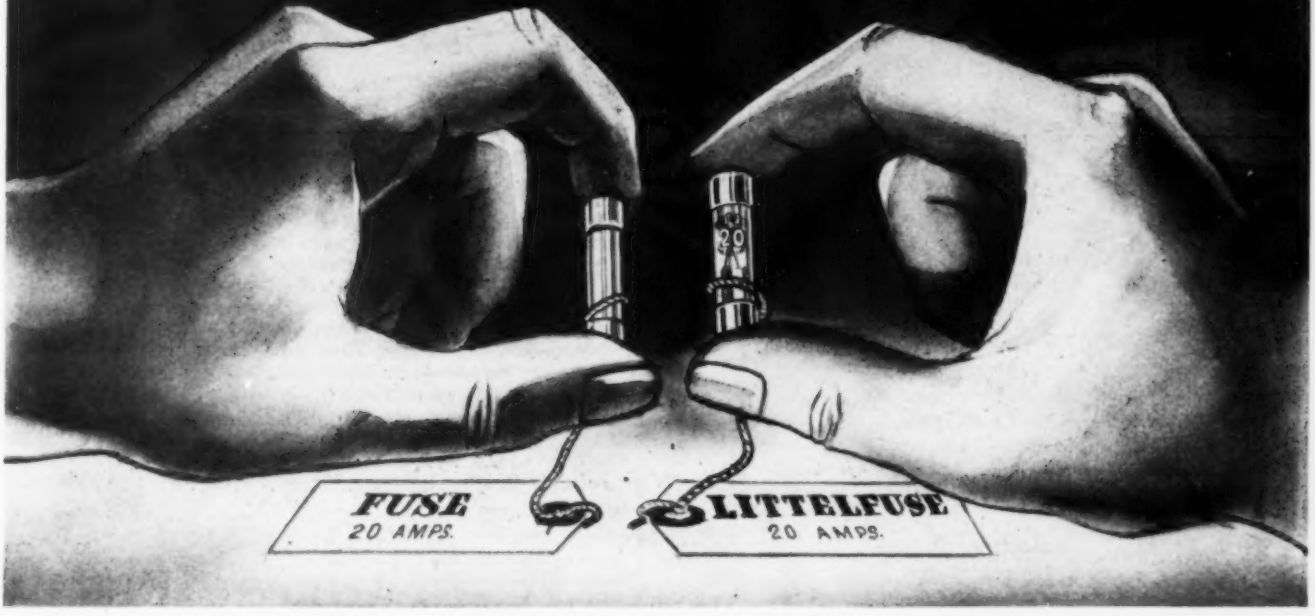

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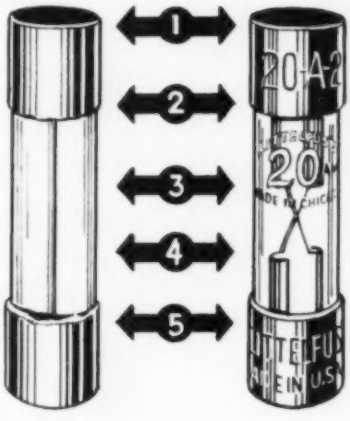

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NEW PRODUCTS

New Snap Action Switch

Aero Electric Co., Cleveland, Ohio, is building a new snap action switch on the rolling spring principle. The switch is designed for actuation from either the top or bottom. It is adaptable to electronic control devices, machine tools, aircraft and electrical appliances. The switch is 9/16" wide, 7/16" thick, weighs less than an ounce and the parts are non-corrosive. The center blade and snap action spring are made of beryllium with a bakelite base. The new switch has passed AAF directive 21A, including salt spray and high and low temperature tests. In company tests the switch has shown no failure after ninety-four million operations. When built into relays, smaller units could be used as only four to six-ounce operating pressure is required.

Compressor Recharges Oxygen Cylinders

A new oxygen compressor developed to recharge aviators' oxygen cylinders has been announced by the Walter Kidde & Company of Belleville, New Jersey. The machine is electrically or gas driven and recharges any cylinder with any gas having properties similar to oxygen and nitrogen. The charging is done by partially filling the receiver cylinders by a booster cylinder then "topping off" by means of storage cylinders automatically kept charged to 2,200 lbs. p.s.i. A water trap and two drying towers are provided to remove excessive moisture. A frangible type safety disc that will burst at between 2,500 and 3,000 lbs. p.s.i. prevents the building up of excessive pressures.

Flexible Putty for Aircraft Skin

A new type of aircraft putty has been announced by DuPont to fill dents and cracks between riveted aluminum sheets forming aircraft wings. The putty is said to be flexible enough to withstand vibration and have fast drying qualities. According to DuPont it has no tendency to flow and maintains the desired surface contour; is low in shrinkage and is of light weight. The new product is known as DuPont No. 228-711.

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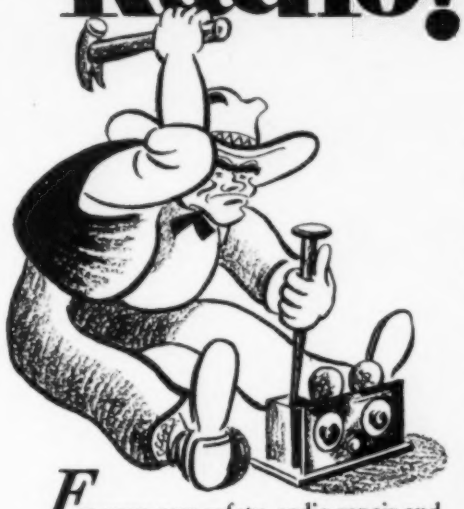

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PERSONALS

MAJOR GENERAL FOLLETT BRADLEY, U. S. Army, Retired, has been named assistant to the president of the Sperry Gyroscope Company. Bradley, a veteran pilot, served in the first World War in both air service and artillery. He was previously in command of the First Air Force at Mitchel Field, N. Y., in 1942, and air inspector, headquarters, Army Air Forces at Washington. . . . HOWARD S. WELCH, former vice president and general manager of Bendix Aviation Export Corporation, has been appointed Export Sales Manager for the Sperry Gyroscope Company. Welch previously had served Studebaker Corporation as manager of export sales and became president of the Studebaker-Pierce Arrow Corporation, South Bend, Ind., at the time Pierce-Arrow was acquired by Studebaker.

H. L. HOWARD has been appointed division comptroller of North American Aviation's Texas Division. Formerly, Howard had been chief accountant at the Dallas plants. . . . WILLIAM F. ARNOLDY, head of the Boots Aircraft Nut Corporation's Detroit office, has been named head of the company's new Chicago office, where he will make his headquarters. Arnoldy will continue as head of the Detroit office in addition to his new assignment. . . . JOHN S. GARRAWAY has been appointed sales manager hydraulic division of Adel Precision Products Corp., Burbank. Garraway prior to joining Adel in 1941, operated his own business, a hydraulic parts manufacturing company.

RAYMOND B. COLLINS, recently civilian chief of priorities and statistical control sections of the Detroit area, U. S. Army Air Forces, has been appointed manager of the newly organized Aviation Division of the Automotive & Aviation Parts Manufacturers, Inc. Collins, a veteran pilot, has served as general manager and referee of the National Air Tours, starter at National Air Races, State Director of the Michigan Board of Aeronautics, manager of the aviation department of the Union Trust Company of Detroit and has been a lecturer on commercial aviation. . . . H. M. McKAY, formerly vice president in charge of production at the St. Louis Aircraft Corporation, has been named assistant general manager of the Fairchild Burlington plant. McKay has been associated with Lincoln Aircraft, Curtiss-Wright and Stearman Aircraft, entering the aviation field in 1925 with Swallow Aircraft, Wichita, Kansas. . . . WILLIAM G. WILSON, formerly with Consolidated Vultee at Vultee Field, Downey, Calif., has been appointed superintendent of traffic for the Texas division of Convair at Fort Worth. Wilson has been chairman of Convair's Traffic Managers' Conference, and chairman of various aeronautical traffic committees.

H. F. HARGROVE, formerly factory superintendent at Vultee Field, Downey, Calif., has been named to the staff of Consolidated Vultee's Fort Worth division in charge of special assignments. . . CHARLES MARVIN has been named chief tool engineer of Consolidated's Fort Worth division, succeeding C. L. R. SMELTZER. Marvin previously was chief tool engineer at the Vultee Field division. . . . HARRY T. PARSONS, recently connected with Chance Vought division of United Aircraft Corp., has been named administrative assistant to C. F. B. Roth, vice president in charge of sales for Aircooled Motors Corporation.

C. H. BENNUM has been named assistant sales manager of Aircooled Motors Corporation. Bennum, veteran pilot of World War I, previously was manager of the Curtiss Flying Service at Syracuse, N. Y., and a fixed base operator at the Syracuse Airport at the time he joined Aircooled Motors in the sales and service department in 1938. . . . HOWARD FIELD, JR., staff hydraulic engineer for North American Aviation, has established his own business as consulting engineer in Los Angeles. Field, a veteran pilot and aircraft hydraulic engineer, has been associated previously with Northrop Corporation and the late Ed Heath.

HARRIS B. CARLOCK has been appointed to represent the H. B. Harper Company in Tennessee, Mississippi, Alabama, Georgia, North Carolina and South Carolina. Carlock, located in Atlanta, Ga., has been a manufacturer's representative in the Southeast for seventeen years.

SOUTHERN AIRCRAFT CORP. promotions recently affected the above men. Left to right are W. M. Mullings, works manager; W. W. Alexander, assistant works manager and A. E. Worley, manufacturing manager. The Garland, Texas, firm is extensively engaged on orders for leading warplane manufacturers.

Cheney Joins Macmillan

Howard W. Cheney, former advertising and sales promotion manager of the Lockheed Aircraft Corp., and widely known advertising and marketing authority, has been appointed assistant to the president of the Macmillan Petroleum Corporation, effective immediately, with main activities directed toward sales of Ring-Free Motor Oil. Following a national tour of distributors, he will headquarter at 530 West 6th Street, Los Angeles.

New APMA Staff

A new executive staff has been appointed by the Aircraft Parts Manufacturers Association to carry out its plans to obtain legislation for the orderly reconversion of Southern California plants to the manufacture of consumer goods. C. C. Codding's resignation as manager was announced with appointment of H. Russell Amory as general manager and Wallace Mackenzie as business service head. A. J. Brechtel will direct industrial relations.

Kelite Adds Chemist

Leon Alexander, general manager of the Houston laboratory of Kelite Products, Inc., announced the addition to his staff of Jack M. Jones, well known industrial chemist who is in charge of controlling manufacturing processes in the plant and research on special problems which occur in this area. Kelite is a leading manufacturer of cleaning and processing materials for the aircraft industry.

New Atlanta Office

General Controls Co., of Glendale, Calif., manufacturers of pressure, temperature and flow controls, has opened a new branch office in Atlanta, Ga., at 376 Nelson St., S. W., and with Roger W. Allen as manager.

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New Cockpit Hood Features Mustang

Greatly improved pilot visibility has been added to the North American P-51B Mustang by the installation of a large, egg-shaped cockpit enclosure. It is almost all plastic, having metal support bands only over the instrument panel. Photos of the unique canopy were still restricted, according to the company, as we went to press, but an advertisement of the company shows it in a detailed sketch. It appears on page 19 of this issue.

AA-American Export Alliance Proposed as Challenge to Monopoly

Civil Aeronautics Board approval was requested last month for an alliance of American Airlines and American Export Airlines, with the former acquiring controlling interest in the transatlantic operation at a cost of $3,000,000. The deal was viewed as making concrete the opposition of most carriers to any "chosen instrument" system of international air monopoly. Both President Ralph S. Damon of American and Vice President James M. Eaton of Export issued statements picturing the alliance as preventing government-controlled domination, and promised an operation "strong enough to cope with the best Europe has to offer and sharpened by American competitive methods." American Export since 1940 has operated regular schedules between New York and Ireland and also regular schedules to South America.

OPA Price Restrictions On Old Planes Eased

Sellers of used airplanes more than six years old, powered with a single engine of not more than 500 horsepower, may now add to their maximum price the depreciated cost of extensive reconditioning to the air frame structure, where the reconditioning has been done within the last three years. In making the announcement last month, the OPA stated such airplanes were not originally incorporated in the regulations governing prices of used equipment because it was thought there was no trading in airplanes more than six years old.

Heretofore owners of airplanes in the six-year-old category or higher were penalized from this oversight. The revision is expected to increase trading in older used airplanes, whose values have increased rather than decreased since the suspension of manufacture of personal aircraft.

3,000 TWA Ocean Hops

Jack Frye, president of Transcontinental & Western Air, Inc., revealed last month that TWA's intercontinental division had completed 3,159 ocean flights for the Army's ATC. Over half that number were across the North and South Atlantic, and the rest covered special flights across the Caribbean, to Iceland, and between Africa and Great Britain. TWA, which operates four-engined Boeing Stratoliners and Douglas Skymasters—all landplanes, is now operating more than a million miles a month.

NAA Plans Service To Consumers

The National Aeronautic Association announced in March the adoption of a program that will primarily assist the consumers of aviation products and services in the postwar era. Anticipating an unprecedented aviation expansion following the end of hostilities, the association will stress local chapter organization in preparation for its new program of service to the people who own, rent or fly personal aircraft, travel by airline or chartered plane, and dispatch property and mail by air. Local NAA chapters will concentrate their activities largely on local airport development, aviation education and the extension of commercial air services.

In the broader national program the NAA expects to maintain close liaison with aircraft manufacturers on problems affecting the users of planes and services "including the problems of demobilization and the disposal of surplus aircraft." Contemplating the extension of additional services to consumers in the postwar era, the association has begun studies looking toward providing flight maps, routing service, airport directories, and information covering approved landing, repair, and hotel facilities available to the itinerant pilot. Expansion of this service on an international basis through the Federation Aeronautique International is also contemplated.

Postwar Fuels Will Include Long-Range 'Special'

Postwar aviation fuels will be produced on a made-to-order basis to fit whatever specifications various operations demand, and will probably fall into four general classifications —No. 1, for long range, No. 2, for 500 to 1000-mile operations, No. 3, for intercity or short haul schedules and No. 4, for private flyers.

This was the outlook presented to the Texas Section of the SAE at its March 14 meeting in Dallas by Fred L. Witt of Houston, technical advisor to the Humble Oil Company. C. F. Holliman of Consolidated Vultee Aircraft Corporation's Fort Worth plant discussed lubrication problems encountered with that factory's thousands of machine tools.

Notables See Diesels

Developments at the Dallas, Texas, laboratories of the Guiberson Diesel Engine Company have attracted numerous notables interested in the aircraft Diesel. Above, second from left, is Major Alexander P. de Seversky noted plane designer and author of "Victory Through Air Power." Left to right are Maj. Miguel Ravinovitch, Guiberson's South American representative; Maj. Seversky, Mrs. Allen Guiberson and Sales Manager Jack Story. Below are members of the Nicaraguan Air Force in the single-cylinder laboratory. Left to right are Guiberson Test Pilot Austin Goodwin, Lt. William Rivas, Maj. Ravinovitch, Lt. Ladislao Guerrero, Lt. Samuel Bodden, and William E. Lind, in charge of Guiberson Research.

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By TONY HAGMANN

The department of sixes and sevens couldn't raise a flag around Dallas County last month. We had the monsoons and they bathed us in liquid California sunshine. But we wound up the bucket of bolts anyway and went out to check the mud flat where airships take to the air when we have Texas weather and eased the situation. One and all were speculating on the how, when and wherefore on purchasing the WTS planes. They were bidding by the gross in order to take care of the great rush of students expected after the rains. Five will get you ten any place in town that students are definitely on the upbeat for flying and with pilots' pleas to Allah (the usual priority), the rains ceased.

Personalidades importantes en Dallas el mes pasado . . . included Major De Seversky who is touting a separate air force for the U. S. He is a man with plenty of long-range vision and a smart gee. He spoke here and in Fort Worth to crowds of interested listeners.

Also in the city was a mission from Colombia, S. A. It included: Lts. Jaime Reyes, Alvara Rey and Felix Galviz of the Colombian Army, and Lts. Gustave Parra and Guillero Leon of the Navy. They were here at the invitation of the Guiberson Diesel Engine Company which also received a mission from Nicaragua. In this mission were Lt. William Rivas, son of Major Guillermo Rivas, Commander of the Nicaraguan Air Force, Lt. Ladislao Guerrero and Lt. Samuel Bodden. These lads were brought to the U. S. under an Inter-American Good Will agreement for special training in our various branches of aviation. They were "thrilled to be actually seeing the planes we looked at longingly in the magazines". Of course, they meant SOUTHERN FLIGHT.

The Nicaraguans had spent six weeks at North American studying engineering principles. They took a course and received their A&E at the Embry Riddle School of Aviation in Miami. The Colombian lads were taking the same course in flying that our own Navy lads get at Corpus Christi. Muy bueno, yes?

Special Notice . . . On the 28th, 29th and 30th of this month you are cordially invited to attend the Southwest Aircraft Exposition being held at Mustang Airport, Dallas. Put it on your "for darn sure" calendar. It's going to be a dillie.

Fort Worth . . . Word came from Margaret Bowman that Fort Worth is the port of entry for our southern cousins 'cross the Grande. With plenty of the ole touch of Texas hospitality in their hearts, Fort Worth erected $25,000 worth of buildings with "in line" facilities to accommodate customs and immigration officials, and fast flying passengers. Hinners, of American Airlines, said that eight of the new employes speak Spanish, so if you need a brush-up course on your "si si-ing" you might take a run over and chat about a trip to the South. E. P. Hart is the boss wrangler of the outfit. Mary Helen McDuff asked us to give it the once over lightly . . . see, Mary Helen, we like it!

Four hundred and fifty miles from Cowtown is Stockton, where local boys James M. Qualls, Reginald J. Robbins, Rex V. Chenault and William Chenault give out with aerocation. That ain't news (Hicks once had twenty-four from here) but we wanted to put their names in the paper. Anyway, Fort Worth has a triple good new airport which makes everybody in Big D just thrilled to little pieces.

Baton Rouge, Louisiana . . . Wilber T. Golson, who reads this column faithfully he said, (for which we do thank him) reports that the East Baton Rouge Parish Airport is bursting with prewar activity. Louisiana Aircraft Sales and Service, Inc., have opened offices and shops complete with A and E mechanics who can really fix. The Chief Pilot is W. C. Turner, who will fly day or night as the students wish. Just to show how nice the field is, Harding Field pilots fly over and shoot landings in twin-engined Cessna's and L2's most days. Of course EBRP Airports flyers can go over there . . . it's a nice exchange.

Kansas City, Missouri . . . Marion Melcher reports that crowds swooped into CAA offices to buy up former training planes offered for sale. Bidders came from Greater Kansas City, Iowa, Nebraska and Kansas. Another thing, the Mayor congratulated and welcomed Continental Airlines, March 1st, as the KC-Denver air link was resumed.

Under CAP News, Capt. Kirk McFarland

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announced the registration of enlisted reserve of the AAF, the CAP or CAP cadet corps. Seven military and aviation subjects are now taught twice weekly at the Junior college by Army instructors . . . in the city . . . Wing Commander W. F. Crawford-Compton of New Zealand, was guest speaker at a luncheon given by the C of C. He is known for having organized the first Spitfire squadron to fly over the Western Front, France. Ruth Nichols was here and explained her organization plans for peace action by RELIEF WINGS, a group she helped organize. She was en route to California.

WNAA, Kansas City Unit, is the largest in the States, having 130 members. Recently they celebrated their seventh anniversary and re-elected officers and board members, which included: Marion Melcher, president; (third time) Merle Webster, vice president; Dorothy Williamson, second vice president; Mrs. Bertha McCartney, treasurer; Tee Smith, recording secretary; Emily Watson, corresponding secretary. Board members were: Misses Laura Nelson, Neva Rea, Mrs. Frederick G. Wirthman, Mrs. Joe H. Gunther, Mrs. Eunice Mecaskey and Mrs. Jeanne Ham. At the dinner meeting also were Mrs. Kenneth Dietz, WNAA Governor of New Jersey, and Mrs. E. Bailey Winton, who has returned to her home, Caripito, Venezuela, via the airlines. This seems to end the April shower of news . . . bye now!

Marion Melcher

Tulsa Airport Still Showing Progress

Manager Charles Short of the Tulsa, Oklahoma, municipal airport last month reviewed operations for 1943, during which the airport again plowed all profits into better and more modern improvements, new equipment, lighting facilities and runway and taxi improvements. Larger terminal and office space are planned.

In 1943 approximately 229,000 airplanes landed and took off. They carried more than 900,000 persons, without serious accident to a single one. Over 98 per cent of the traffic was in the interest of the war effort. Short says over five times the present traffic can be safely and efficiently handled on the airport. During the year his airport trucks dispensed over 4,180,000 gallons of gasoline—equivalent to more than 5,000 railroad tank cars—and 20,000 gallons of oil. Over 250 planes are housed nightly in the airport's seven hangars. The airport restaurant served more than 140,000 persons during the year.

American, Continental and Mid-Continent Airlines handled over 160,000 pounds of air mail and 150,000 pounds of air express through the Tulsa airport during the year.

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Michigan Wing Active In Lake Patrolling

By Harry LeDuc, Lieut., CAP

Aerial patrols over the arteries connecting Lake Erie and Lake Huron, to observe ice conditions, highlighted March flying in the Michigan Wing (63) and led to an earlier opening of navigation than in normal times for the third straight year.

Ice-breakers, directed by the U. S. Coast Guard, smashed through ice-jams near the source of the St. Clair River in Lake Huron, in the steamship channel flowing into Lake St. Clair and in the Detroit River's mouth at Lake Erie.

Coast Guard officers of the Port of Detroit were taken up on repeated flights, as observers, until aerial photographs and observers' maps had charted the points against which ice-breakers would be sent.

As a result, navigation on the lower Great Lakes opened three weeks ahead of time over a water route that annually moves millions of tons of war material. Few in America appreciate the fact, but more tonnage moves via water past Detroit every year than goes through either the Suez or Panama canals. The river there is the most heavily traveled water artery in the world, and the Michigan Wing's pilots and planes put it to work almost a month ahead of time for the third straight year.

Michigan notes: The tightening of Army Air Corps requirements has not lessened cadet procurement in this state, the campaign in the state being featured in March by a Cadet Day dance in Lansing for which the Michigan Exchange Club engaged Duke Ellington's band; attendance exceeded 3,000. . . . Lt. Col. Ray Baker, wing commander, flew a University of Michigan faculty group to Mexico to permit study of the newly erupted volcano there. . . The wing's seaplane squadron will reopen its base again this month, manning it with three to five planes to be flown for the Coast Guard. . . . Capt. Mel Holderness has been placed in charge of instruction in instrument flying and utilizes two instrument-equipped ships to teach those who have completed their Link Trainer courses. . . . Week-end maneuvers at Wings' Airport, the Michigan training base, have become frequent. . . Every Michigan squadron has had "its shot" at the Army training planes and many units have had two or more chances at the nine planes assigned the wing. . . . The wing magazine, Contact, has had a staff reorganization with Les Berry, of the Detroit Saturday Night, the new editor. . . . Grand Rapids followed Lansing with a Cadet Day rally.

More Winners of $64 Question Contest

Frank D. Compagnon, First Lieutenant, CAP, Training Officer of Group 3, Colorado Wing, was awarded $64 by Southern Flight for the best letter submitted as of March 15 in this magazine's contest for suggestions on how and why the CAP should be made permanent. His winning letter is published in full on page 31 of this issue. Next month we will publish results of the third and final series of letters submitted during the contest.

Winners of Runner-Up and Honorable Mention in this month's judging, each of whom will receive a year's gift subscription to Southern Flight and a gift copy of the 1944 Civil Air Patrol Handbook, are as follows:

Runners-Up

W. S. Karr, 1410 W. Saginaw, East Lansing, Mich.; Margaret Cowling, CAP, Detached Flight 724-2, Galena, Ill.; Hayden Brooks, Major, CAP, Executive Officer, Alabama Wing, Birmingham 3, Ala.; Jack E. Ballentine, Capt., CAP Transportation Officer, Tennessee Wing Staff, Nashville, Tenn.

Honorable Mention

Leile Rankin Mather, CAP Squadron 811-2, Dallas, Texas; Betty Weir, PFC, CAP, Omaha Squadron 2, Omaha 2, Nebraska; Colleen Leehan, 218 N. 7th Street, Ponca City, Okla.; June Donnelley, S/Sgt., CAP, Cadet Adjutant Group 1, Oklahoma City, Okla.; C. W. Agsten, Portland Oregon Squadron, Portland, Oregon.

LAST MONTH'S WINNER of a $64 award for the best letter on the future of the CAP was Sergeant Technician Mildred Farner, CAP, of Findlay, Ohio. She was promoted after we went to press with her rank stated as "Private." Sgt. Farner attached eleven dollars to SOUTHERN FLIGHT'S check and bought a $100 War Bond "to help Keep 'em Flying." Which makes us even prouder to have selected her as a winner.

FDR Praises League; Directors Announced

Thomas H. Beck, of New York, chairman of the new Civil Air Patrol League, has received a letter from President Roosevelt endorsing aims of the League and stating: "Continued and growing familiarity of our coming generations with aviation and its problems is of great importance to our national health and security, both during the war and in the peace to come."

Beck simultaneously announced that directors of the League include Henry Kaiser, the shipbuilder; Dr. Edwin H. Armstrong of New York, scientist and radio inventor; Mrs. Alan Means, national president of the Girl Scouts, and Phillips M. Payson of Maine.

ATTENTION

Many Civil Air Patrol members who have seen the new 1944 CAP Handbook have written us asking how they may obtain personal copies of this valuable manual. We are pleased to announce that distribution of the new 1944 Handbook is being made as follows:

1. All State Wing Commanders are being allotted a quota of copies to be distributed free to members of their command.

2. Copies are being given free with all two-year new or renewal subscriptions sent in by Civil Air Patrol members at the regular $3.00 price of the magazine alone. If ten or more subscriptions are ordered at one time, the price of each subscription, including free Handbook, is only $2.50. Since this Handbook was planned primarily as a service to our large number of CAP readers, we will reserve enough copies to meet the anticipated demand.

3. After the free distribution requirements of the various State Wings and our subscribers have been met, and if our restricted paper supply permits additional printing, the Handbook may be obtained direct from SOUTHERN FLIGHT at the nominal price of 50 cents, plus 15 cents postage. We will announce later if and when this can be done.

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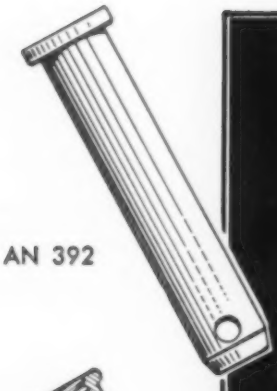

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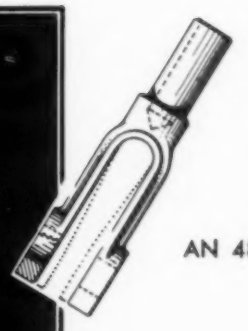

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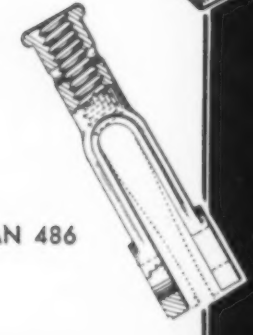

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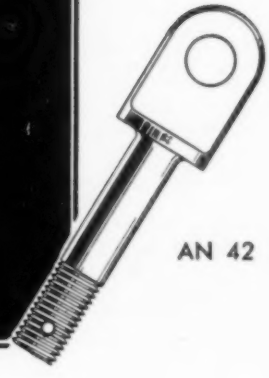

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